



2.12266



*Class* \_\_\_\_\_ *No* \_\_\_\_\_

*Presented by*

EXCHANGE

Bdg. 3.05



LIBRARY OF THE  
COLLEGE OF PHYSICIANS  
OF PHILADELPHIA



Digitized by the Internet Archive  
in 2016

<https://archive.org/details/journalofoklahom5219okla>





Volume 52

JANUARY 1959

Number 1

the

# Journal

OF THE OKLAHOMA STATE MEDICAL ASSOCIATION



BEST WISHES FOR 1959



therapeutic sulfa  levels

**Midicel<sup>®</sup>**

(sulfamethoxypyridazine, Parke-Davis)



# Editorials

## **The Cover Picture of the Orange Bowl and Why**

Many, no doubt, have wondered why a picture of the Orange Bowl appeared on the cover of the *Journal* of the Oklahoma State Medical Association. This is a good question and deserves an answer.

The Big Red in the Orange Bowl is a symbol of the pride of which Oklahomans are capable. This type of pride, like love, need not be limited and is not measurable. It is not something tangible outside the human being, but something intangible within. If the human being has learned to possess it, he has also learned to make it grow and to give it power—power to give increasing energy and force and meaning to the object which caused its generation in the first place. Oklahomans have learned to generate that force for the Big Red and the Big Red has responded year after year.

If we have learned this, we can apply it to the State as a whole, to its government, to the Oklahoma State Medical Association, to the University of Oklahoma School of Medicine and to any other instrument for human progress. Without it there can be no real harmony of purpose and harmony of progress toward the attainment of a goal of fulfillment in its broadest sense.

While this piece was being prepared, attacks on the medical school appeared in the official organs of two medical groups within the state. It is distressing, for both writers showed indications of some lack of understanding of the matters about which they were writing. One does not doubt their sincerity but the necessity of having to write something without an inner urge to do so does not always lead to satisfactory performance even for the writer. If our pride is strong, unselfish and has force, the object of it will, because of it, eliminate many obstacles to its continued and sustained existence. The Big Red in the Orange Bowl is offered as proof.

## **"The Doctor Business"**

This is the title of a book by Richard Carter that has recently appeared at the book sellers. A chapter is devoted to medical delinquency in which the AMA is cited for its failure as a disciplinarian. Fee-splitting comes in for its share of criticism.

"A close relative of fee-splitting is unnecessary surgery, an inhuman practice which often takes place whether fees are split or not but seems to depend in part on whether the victim has insurance against surgery bills. The national health insurance survey by the Health Information Foundation and the National Opinion Research Center found that people covered by insurance undergo almost twice as many operation as persons not covered. Appendectomy and tonsillectomy rates are especially compelling: among every 100 persons with hospitalization insurance, the survey turned up 11 appendectomies per year. Yet, among every 100 uninsured people, there were only five appendectomies per year. Among insured children there were more than three times as many tonsillectomies a year as among uninsured children."

The real culprit here is not the AMA or the physician—but *third party medicine* which the AMA has consistently opposed. In other ways, however, the criticism is not entirely valid. One doesn't know how many people who did not have insurance were advised that they should have an appendectomy or tonsillectomy. Nor does one know how many had been advised of this and proceeded to avail themselves of insurance.

*Third party medicine* must be reckoned with. It is apparently here to stay. Mr. Carter compares the fee-for-service principle unfavorable with non-profit clinics which have sprung up over the country which are apparently collectively represented by the Group Health Federation of America of Chicago. He lists 25 groups as regular members and 45 as associate members.

The point that so many critics of American medicine miss is that these groups which they think so much of have developed in a private enterprise system. They have been able to build up a medical personnel who were trained under that system. Furthermore the people who subscribe to these groups have the regular practitioners of medicine to fall back on, and these groups have access to highly trained specialists in various fields who are in the private practice of medicine. The last sentence in the chapter reads, "Here again the performance of organized medicine is a vivid argument for the acquisition by consumers—and possibly their legislatures—of appropriate control over the economics of medical service."

*Third party medicine* is young. We will find a way to solve the problems of abuses. It has been less than 50 years since the Flexner report triggered the revolution in medical education that did away with the diploma mills in this country. It was even later that medical education became a reality in name. We still need to attract the best brains possible to our medical schools. We cannot do it if the economics of medical service is under government control or consumer control. If these groups are forced to bid for medical personnel against private practice the income will be adequate to take care of their families in reasonable comfort and insure the education of their children, but if no competition is present the doctor will be forced to take what the group will offer. When this time comes the quality of student and ultimately that of the teacher and the doctor will rapidly deteriorate. It is indeed a short sighted social philosopher who would sell a great and needed profession down the river because looking for delinquency, he found it. Had he looked for improvement in medical education, in medical service, in post doctoral training, or for suppression of nos-

trums and quacks he would have found that too. The shriveled soul of the cheater, be he physician, patient or reporter cannot be altered by legislation. Mr. Carter, and indeed all of us, must push for better ethics in our time—a more diligent application of the Golden Rule.

It should be of some concern, however, that the whole fabric of voluntary health insurance can and may break down. Doctor Seymour E. Harris, Professor and Chairman of the Department of Economics, Harvard University, who has studied the program carefully reported at a recent meeting that he considered this likely. He thinks this so for two reasons.

1. It is too expensive for the return. That is, too little of the dollar spent goes for the purpose for which it is intended. In 1957, according to the Argus Chart, two Oklahoma companies paid for hospitalization and medical service only 37 cents and 43.9 cents respectively for each dollar the policy holder paid for that purpose. Oklahoma Blue Cross and Blue Shield returned 87.7 and 82.8 cents respectively.

2. Abuses. Overutilization will in time force the costs up to a point that people will be unable to afford the prepayment plan.

It is well and good to consider how to instill in children higher ethical standards that will be sustained through their adulthood but there must be some policeing too, if we are to avoid Mr. Carter's consignment to consumer or government control. The insurance companies will have to do their share of this in some way. They have had a long and honorable existence in this country. It would be too bad for them too, to go by default. One can be sure that if medicine is the first great necessity to be socialized, it will not be the last.

---

ACHIEVEMENT, *n.* The death of endeavor and the birth of disgust.

*From the Devil's Dictionary by Ambrose Bierce —*

Sagamore Press, Inc.



# Scientific Articles

## Clinical Aspects of the

## KIDNEY STONE PROBLEM

EDWIN L. PRIEN, M.D.

Urolithiasis is a recurrent disease in many people. The rate of recurrence will vary considerably—from 15 to 20% for the common small calcium oxalate stone so often passed by individuals with an uninfected urine, to a recurrence rate as high as 60 to 70% for staghorn stones removed by operation from chronically infected kidneys. It is, therefore, worthwhile to attempt to prevent such recurrence by the application of specific regimens for the various types of stone. Since this is a general medical audience I am going to talk to you about medical management.

We do not know the cause of the great majority of urinary calculi despite an enormous amount of work on clinical and investigative levels. There are a few exceptions such as hyperparathyroidism, responsible for about 5% of recurrent calcium-containing calculi, and there are a few other conditions responsible for even fewer stones.

Certain predisposing factors in stone formation are recognized but cannot be considered as causal because stone may occur without them or be absent when they are present. My thesis may then be stated as follows: we do not know the cause of the great majority of urinary calculi. We may never learn all the causes. May it still be possible to prevent recurrence without knowing these causes? I do not believe that this problem of prevention of recurrence is an entirely insoluble one.

Probably a few words concerning the composition and classification of calculi are in order before we proceed further. Urinary calculi are divided into calcium-containing and non-calcium-containing. Here in North America approximately 90% of all calculi are calcium-containing. The substances in

### THE AUTHOR

A graduate of Harvard Medical School in 1929, Edwin L. Prien, M.D., limits his practice to his specialty of Urology. He is certified by the American Board of Urology.

In addition to his private practice in Brookline, Massachusetts, Doctor Prien is Assistant Clinical Professor of Urology, Boston University School of Medicine.

Doctor Prien is a member of the American Urological Association, and also is Secretary-Treasurer of the New England Section of the American Urological Association.

*This paper was presented at the 52nd Annual Meeting of the Oklahoma State Medical Association in Oklahoma City, May, 1958.*

these calculi are calcium oxalate, calcium phosphate and magnesium ammonium phosphate. The calcium-containing calculi are subdivided into two groups on a clinical basis, mainly on the basis of urinary reaction. The first group include the so-called primary calculi, generally occurring in an acid urine, usually uninfected and originating in kidneys which appear normal by pyelography. The second group comprise the "secondary" calculi, which are associated with or secondary to urinary obstruction, stasis or urinary infection. The infection is by organisms which split urea to form ammoni, a powerful base.

### Conditions of Occurrence of Calcium-Containing Calculi

Content	Environment
Calcium oxalate or Calcium oxalate-calcium phosphate	Normal urinary tract urine acid usually infection + or —
MgNH <sub>4</sub> PO <sub>4</sub> —calcium phosphate	Abnormal urinary tract alkaline urine urea-splitting infection usually

The remaining 10% of calculi are composed as follows: uric acid about 6% and cystine 3%. Uric acid may also be found in a few per cent of the calcium stones. The crystalline compounds are enmeshed in an organic matrix or network in all calculi. This matrix is quite constant in composition and is of a mucopolysaccharide-mucoprotein nature.

#### **Importance of Analysis of Stones**

Largely because regimens for the prevention of stones have not been very effective there has been a tendency to disregard the composition of the urinary stone. Furthermore, the usual chemical analysis of calculi has been unsatisfactory and not helpful. Commonly the report mentions a jumble of ions or radicles which make little sense. Some few laboratories do provide an adequate chemical analysis. A new technique, called crystallographic analysis, is superior to any chemical technique for this purpose. The calculi are fragmented and analyzed upon the stage of a polarizing (petrographic) microscope. Because urinary calculi are composed of different substances, and because treatment to prevent recurrence may be diametrically different for the various types, it is important to know the composition of the stone.

#### **General Measures in Stone Prevention**

I do not have time to discuss in detail the various regimens and therapies which have been used to prevent recurrence of urinary stone. Certain general measures are applicable to all cases. The eradication of foci of infection, whether in the teeth, tonsils, prostate or elsewhere is indicated. Hyperparathyroidism must be ruled out. Faulty habits of living should be corrected. The patients must be impressed again and again with the importance of a liberal fluid intake and regular adherence to the stone prevention program. Cooperation by the patient will depend, in large measure, upon the application of regimens which are not disciplinary nor rigorous. Stringent dietary restrictions in patients with recurrent stone of any type have, in general, been ineffective, unacceptable for long term therapy, and unnecessary.

#### **Prevention of Uric Acid and Cystine Stone**

Since I plan to spend most of the time in

discussion of the treatment of calcium stone let us first dispose of the problem of cystine and uric acid stone. The application of isotope techniques has shown that uric acid is synthesized in the body from the simplest carbon and nitrogen compounds and not exclusively from ingested purines and nucleoproteins as had been thought. Therefore, drastic restriction of diet to prevent uric acid stones is not indicated. There is no dietary treatment for cystine stone.

Prevention of the uric acid and cystine stone depends on alkalinization of the urine. The solubilities of these substances are considerably enhanced in alkaline urine.

The best alkalinizer is sodium citrate as proposed by Albright. A mixture of potassium citrate and sodium citrate may be used in patients who are on a low sodium diet. A rounded teaspoonful (3 or 4 Gm.) three or four times daily in water has sufficed in most cases to keep the pH at 7.5. This salt may be bought by the pound and used indefinitely without harm. Soda bicarbonate may be used if preferred. An alkaline ash diet is unnecessary. It is mandatory that patients check the pH of their urines to maintain the proper alkalinity. Nitrazine paper will be adequate for this purpose. Occasionally alkalinization of the urine has merely changed the composition of the stone in a uric acid or cystine stone-former; calcium phosphate and magnesium ammonium phosphate have been precipitated instead. To prevent this a low calcium diet should be given with the alkali.

The commonest error which I have found in the programs of patients on alkalinization therapy is laxness in checking the urinary pH. All too frequently only a few tests are made, commonly at the same time each day and then further checking of the pH is abandoned. It seems not to be recognized that the urinary pH varies throughout the day and from one day to the next. It is necessary to know what the pH is all the time and it is necessary that the urine be kept alkaline 24 hours a day. To learn about this the pH should be determined at least five times daily for a week. Only by becoming thoroughly familiar with the 24 hour urinary reaction and keeping the urine alkaline



all the time may the patient expect successful stone prophylaxis. Even then stone will recur in some cases. It should be said that it is much easier to keep the urine alkaline than acid and that prevention of recurrence of uric acid stone has been generally quite successful in my experience; I have had somewhat less success with cystine.

#### **Prevention of Calcium-Containing Calculi**

Let us consider now the regimens in use to prevent calcium stone. It is only in the very occasional case that there is evidence that dietary excess of calcium is responsible for stone formation, as in heavy milk drinkers or persons who take alkalies regularly. Furthermore, many calcium stone-formers continue to make stone when placed on low calcium diets. I, therefore, merely require that they refrain from milk as a beverage and eat no cheese. The average person's intake of calcium from other food sources is probably less than 150 mg. per day which is quite acceptable. This regimen permits them to have milk or cream in coffee or tea, on cereal or fruit and even allows them a little ice cream. I do not restrict the intake of high oxalate foods because I do not believe that much oxalate is absorbed.

Acidification of the urine plus a low calcium diet probably has been used more frequently than any other form of combined therapy to prevent recurrence of calcium stone. The solubilities of calcium phosphate and magnesium ammonium phosphate increase with increase in acidity of the urine; the solubility of calcium oxalate is virtually unchanged by change in urinary reaction.

Ammonium chloride, acid ash diet and sodium acid phosphate have been used to acidify the urine. They are open to the objection that they may produce acidosis and bone demineralization and may also increase the excretion of calcium phosphate in the urine.

The major objection to acidification therapy has been that it failed to acidify the urine much of the time. In the presence of a well-developed urea-splitting infection the urine cannot be acidified at all and continued use of the drug may be detrimental. Even in an uninfected urine the expected decrease

in pH may fail to develop, or may be irregular. Many physicians have had little success with acidification therapy.

#### **Low Phosphate Diet Plus Aluminum Gels For Chronic Infection With Stone**

Another form of therapy is used in patients who have chronic infection plus stone, often with obstructive lesions of the upper urinary tract. Usually the stones are of the staghorn variety and the urine is alkaline due to organisms which split urea to form ammonia. In this very alkaline urine the stone salts are very insoluble and precipitate out to form calculi. It is practically impossible to eradicate this infection when stone is present, and very difficult, even after the stone has been removed. A recurrence rate of 60-70% is common, and chronic pyelonephritis and uremia are frequent sequelae.

Aluminum gels are used in this type of case. They do not depend on acidification of the urine. The aluminum combines with phosphate in the bowel to form insoluble aluminum phosphate which is excreted in the feces and does not get to the urine. The problem with this form of therapy is in making the patient swallow three to four ounces of aluminum gel daily; it is not a particularly pleasant medication and only patients who have had considerable stone trouble in the past may be expected to cooperate over the long period of time necessary—a period which must run for years. This therapy has been effective in some cases, however.

#### **The Importance of Vitamins and Nutrition**

It is felt by some that vitamin A deficiency is an important factor in stone formation. While avitaminosis and malnutrition probably are factors in the endemic stone areas of Asia, it is doubtful that they are important factors in most of North America with its high standard of nutrition. I find no reason to give supplementary vitamins to stone-forming individuals who are eating a well-rounded diet.

#### **Hyaluronidase**

The importance of urinary colloids in increasing the solubility of the stone-forming substances in the urine has been warmly debated. Butt and associates claimed that

an enzyme, hyaluronidase, injected subcutaneously, produced a protective colloidal effect in the urine and prevented stone formation. Boyce and associates found no change in the total quantity of urinary colloids nor in the precipitability of the urinary salts after hyaluronidase administration. Clinical experience has failed to justify the original claims made for the enzyme.

### Salicylate Therapy

About five years ago we began searching for a new treatment to prevent calcium stone, having in mind the various defects and inadequacies of existing regimens. The new therapy had to meet certain specifications because it must necessarily be carried on over a long period of time. The stone-forming tendency is not usually a transient episode. The new therapy had to be convenient, not unpleasant or disciplinary to insure cooperation by the patient, and it had to be relatively inexpensive. From the literature we had learned that the solubility of calcium phosphate is increased in the presence of glucuronic acid. This acid is normally present in small amounts in everybody's urine. The glucuronic acid molecule looks like the glucose molecule with some additional oxygen. Many metabolic products are excreted in the urine combined with glucuronic acid, including a large number of drugs. It is common pharmacologic knowledge that the amount of glucuronide in the urine may be markedly enhanced by increasing the dosage of the drug which has to be excreted as a glucuronide salt. Apparently the body manufactures glucuronide from glucose in accordance with the demand for it. So we merely selected the commonest, cheapest and safest drug which would do this—and this was aspirin. Later we discovered that a related drug, salicylamide, produced a considerably higher glucuronide response in the urine. The table shows the average daily normal glucuronide excretion and the increase when aspirin and salicylamide in dosages of two gm. per day is employed.

So, by administering a salicylate we stim-

ulated a marked increase in the amount of glucuronide in the urine and this was believed to increase the solubility of calcium salts which may form stone.

After several years experience we discovered some inconsistencies in the theory although our clinical results were fairly good. In our laboratory we were trying to elucidate the nature of the mechanism whereby the calcium appears to be solubilized, or, in other words, made unavailable for stone formation by salicylate therapy. We found that while glucuronic acid solubilized some calcium it was not enough to explain what happened.

Also, there had been failure to prevent stone growth in some of the cases in which the urine was infected by bacteria which split urea to form ammonia. In this very alkaline urine two of the stone salts, calcium phosphate and magnesium ammonium phosphate, are very insoluble. These are the two salts which composed the large staghorn calculi.

Scanty and conflicting reports in the literature mentioned that salicylate end products are excreted in the urine as acid ethereal sulfate salts as well as glucuronide salts. The table shows the average amount of ethereal sulfate in the urine and the increase due to salicylamide administration. Ethereal sulfate salts are organic, highly ionized and soluble and are to be distinguished from the common inorganic sulfate, also present normally in large amounts. We believe that soluble ethereal sulfate salts of calcium are formed in the urine by salicylate administration. It is ironical that we did not recognize the significance of the ethereal sulfate earlier. We now believe that there are two mechanisms which bind calcium in the urine, glucuronide and ethereal sulfate.

Despite the fact that the ethereal sulfate radicle is very acidic we have noted no significant increase in acidity of the urine in patients on salicylamide administration. Instead neutral salts are formed which remain in solution. However, we have made no care-

#### Urinary Excretion of Glucuronide

Normal	0.1 to 0.6 gm.
Aspirin 2 gm/day	0.6 to 1.5 gm.
Salicylamide 2 gm/day	1.0 to 3.5 gm.

#### Urinary Excretion of Ethereal Sulfate

Normal (0.04 - 0.1 gm.)	usually 0.04 - 0.06 gm.
Salicylamide 2 gm/day	0.2 - 0.35 gm.



# EXCRETION OF SOLUBLE CALCIUM SALTS BY SALICYLAMIDE THERAPY

Glucose (food)	Salicylamide (medication)	Sulfur Amino Acids (food)	G.I. Tract
Salicyl glucuronide	Ethereal sulfate of salicylamide		Blood
Calcium Salt of Salicyl glucuronide	Calcium salt of ethereal sulfate of salicylamide		Urine

ful studies of urinary acidity in these cases as yet. We believe that salicylamide therapy furnishes acid radicles in the urine to combine with cations such as calcium, magnesium, sodium or ammonium. It is obvious that the acid ethereal sulfate is more potent than glucuronide acid in binding calcium.

In beginning treatment, we started all patients on two grams of aspirin daily; this meant taking two aspirin tablets three times daily—a very simple and convenient procedure. This dosage was selected somewhat empirically as a safe and acceptable one for prolonged medication. Inspection of the literature had suggested, that, aside from the occasional gastric intolerance of salicylates, and the rare case of idiosyncrasy to the drug in any dosage, that the more serious complications generally followed a dosage of at least six grams daily. As has been stated, we switched to a related drug, salicylamide, when it was found that it produced a considerably higher glucuronide and ethereal sulfate response in the urine and we have used it almost exclusively since in the same dosage, two grams a day. In addition it is slightly better tolerated by some individuals who developed heartburn on aspirin. Buffered aspirin produces the same response as does aspirin, and is, therefore, believed to be inferior to salicylamide for our purposes. In addition, the buffering alkali may be slightly undesirable, at least from a theoretical standpoint, because it might neutralize some of the ethereal sulfate.

In addition to the daily dose of salicylamide we ask our patients to force fluids and to avoid milk as a beverage and to eat no cheese. There are no other restrictions.

Considerably more than 100 patients have been under treatment for varying periods of time up to 4½ years. The original study group consisted of 19 patients, all of whom had histories of severe or moderately severe

recurrence of calcium stone. Chronic obstructive changes of the upper urinary tract were present in six and 16 of the 19 had chronic urinary infection. The organisms included urea-splitting bacteria. No patient was uremic but six had only poor or fair renal function. Some were free of stone and some had stone existing in the kidneys at the time treatment was started.

Extensive laboratory studies were made on all patients before treatment was begun and these studies were repeated at intervals. This included x-rays of the kidneys every six months to determine if new stone had formed or if there had been any increase in size or density of calculi existing at the time treatment was started.

In this original study group of 19 patients it is possible to report the following results: one patient was a failure from the start—he continued to make stone at a rapid rate. In five others there has been some increase in size or density of pre-existing calculi—in three of the cases it was slight, in two quite considerable. These were patients with urea-splitting urinary infection. Only one patient has developed a new stone which he passed. In the other 13 patients we are reasonably certain that there has been no new stone formed and no increase in size or density of calculi existing before treatment was started. In several of these patients the results were quite remarkable. One patient had passed over 100 calculi in a period of 14 years and had been unable to work much of the time; on salicylate for the past four years he had passed one small stone and has been able to work regularly.

A much larger group of patients has been under treatment and observation for shorter periods. Some of these have had less severe stone disease and all have not remained on the regimen continuously. Some have drop-

ped from sight. It seems reasonable to believe that the results may not have been as good as in the original group which was composed of dedicated patients, all of whom had had considerable trouble with stone in the past.

Other physicians have tried salicylate therapy and we have had reports of success and also of failure. Most of the failures occurred when urea-splitting infection was present in the urine. We believe that the reason for failure in these cases may be that ammonia which results when urea is split combines with ethereal sulfate, making the latter unavailable for combination with calcium. Ammonia is a base and competes with calcium for the ethereal sulfate.

Some failures were the fault of the physician or patient. You can't just give the patient a bottle of salicylamide tablets and then forget him. He must be seen regularly, the urine carefully examined and the degree of his cooperation in the program assessed, as is well known. Most chronic stone formers are notoriously careless about cooperating when they are free from pain.

#### **Contraindications to Salicylate Therapy**

We do not recommend the use of salicylate drugs in patients who are uremic because there is danger of toxicity from retention of the drug. In patients with reduced renal function but who are not uremic salicylate administration may be attempted but only with continuing and rigorous medical supervision. As long as it can be demonstrated that the drug is being excreted it may be safe to continue treatment. This decision will depend on the laboratory and not on a casual office visit and routine urinalysis.

The patient who has a history of duodenal ulcer and of urinary stone, a not uncommon combination, may provide a real problem. Salicylates may activate his ulcer and we have had one such case. Duodenal ulcer may provide a real contraindication to salicylate therapy. We have no evidence that it is of value in uric acid or cystine stone.

#### **Indications for Salicylate Therapy**

I do not believe that this regimen is indicated in the patient who has merely passed his first ureteral calculus or who has uncomplicated stone recurrence at long intervals. The frequency of recurrence, the rela-

tive ease or difficulty experienced in getting rid of the stone, and the patient's personal inclinations are to be considered.

The real value of salicylate therapy in preventing calcium stone will only become obvious after enough patients have been treated by a large group of physicians for some years. In the individual case the result may not be obvious after many years unless there is failure to prevent stone growth. This is because of the nature of stone disease; recurrence is unpredictable. We have heard more about the failures than the successes—as would be expected.

As an index of presently existing therapeutic effectiveness we have been determining the quantitative increase in glucuronide and ethereal sulfate in the urine of patients under treatment. These are laboratory procedures not available at present in the average clinical laboratory. Only experience will determine whether they will be necessary in routine therapy.

Salicylate drugs are cheap and this includes salicylamide. The addition of vitamin A or C, cortisone, alkalies, atropine derivatives, antispasmodics, narcotics and antibiotics to salicylamide has either been proposed or already exists in products which are advertised to prevent kidney stone. None of these additions are useful for our purpose and some may even be harmful when taken over prolonged periods. I suggest that you prescribe salicylamide alone. And be sure that your druggist gets good salicylamide. One or two brands are manufactured without "quality control" I am told. These are sold wholesale to druggists much cheaper than the others. Demand that your druggist not buy the cheapest brand.

One more point—don't put off operation for stone when it is indicated. To do so may result in damage to the kidney; salicylamide will not dissolve hard stone. Give the drug to prevent recurrence.

I would like to emphasize that we do not claim that we have a proved therapy or one which will prevent stone in all cases, but only a promising one. Only you gentlemen can determine its value by trying it out. I recommend it for your consideration.

1101 Beacon Street, Brookline, Massachusetts



# Dermatomyositis and Systemic Lupus Erythematosus in Childhood

LOUIS A. BRUNSTING, M.D.  
Mayo Clinic and Mayo Foundation\*

The occurrence of dermatomyositis and systemic lupus erythematosus in childhood is not altogether uncommon. Both are serious systemic diseases with clinical patterns that overlap and are sometimes indistinguishable. It is the purpose of this paper to clarify some of the difficulties of diagnosis and management and to emphasize the devastating effects of these diseases on this age group in particular.

Wedgwood and associates,<sup>1</sup> Roberts and I,<sup>2</sup> and Everett and Curtis<sup>3</sup> have recently reviewed series of cases of dermatomyositis in which the patients were children, in some cases, infants. The sex distribution is predominantly female, with a ratio of two to one. My colleagues and I at the Mayo Clinic find that about 20 per cent of all cases of dermatomyositis have their onset before the age of 15 years.<sup>4</sup>

Figures on systemic lupus erythematosus are less clear. The application of the L.E. clot test in recent years has improved the possibilities of accurate diagnosis. Certainly the very young are rarely affected. Zetterström and Berglund<sup>5</sup> described the course of 11 children with systemic lupus erythematosus seen in Stockholm during a three-year period ending in 1955. There were six girls and five boys in the series; the youngest child was five years old, and six were in the 11 to 13-year-old group at the onset of symptoms. The result of the L.E. clot test was positive in only five cases. Rollins and I<sup>6</sup> reviewed 18 cases of acute systemic lupus erythematosus in children seen at the Mayo Clinic within a five-year period ending in 1954. Six were less than ten years of age at the onset of symptoms, the youngest being two years old. There were 16 girls and two boys, a ratio of eight to one. This is compatible with the sex ratio of the disease in adults.

## THE AUTHOR

Louis A. Brunsting, M.D., graduated from the University of Michigan School of Medicine in 1924. His specialty is Dermatology and Syphilology and he is certified by the American Board of Dermatology. Doctor Brunsting is associated with the Mayo Clinic and also serves as Professor of Dermatology and Syphilology at the University of Minnesota Graduate School, Rochester, Minnesota.

A Past-President of the American Dermatological Association, Doctor Brunsting holds memberships in the American Board of Dermatology, the Society of Investigative Dermatology, and the American Academy of Dermatology and Syphilology in addition to having Honorary and Corresponding memberships in numerous foreign societies.

Doctor Brunsting is a member of the Residency Review Committee of the A.M.A. and is on the Editorial Board of the Archives of Dermatology.

*This paper was presented at the Fall Conference of the Oklahoma City Clinical Society, Oklahoma City, October 28, 1958.*

## Clinical Features (Table 1)

*Dermatomyositis.*—The cardinal feature of this disease is muscular weakness. Chiefly the skeletal muscles of the shoulder girdle and the pelvis are affected. The head droops forward and the arms are elevated with difficulty. The child may be unable to sit up unaided from the supine position. Other common movements such as climbing steps, bending over or rising from a sitting position on the floor may be impossible. Later, weakness of the diaphragm, the palate or the ocular muscles may appear. Fleeting muscle pains may occur, and tender areas of doughy infiltrates and later fibrous stringy bands may be detected in the biceps and hamstrings. Peripheral neuritis is absent. The sensorium is normal.

Despite these muscular signs, in the early stages of the disease the child is usually not sick. Occasionally a mild febrile bout or ex-

\*The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

Table 1  
Dermatomyositis Versus Systemic Lupus  
Erythematosus in Childhood:  
Clinical Features

Dermatomyositis	Systemic lupus erythematosus
Females predominate 2:1	Females predominate 8:1
Onset insidious	Onset acute or insidious
Weakness, particularly shoulder and hip girdle, upper part of gastrointestinal tract	Fatigue
Muscular pain	Arthralgia
Low fever	Fever and prostration
	Nephritis Pleurisy Serious exudates Convulsions
Edema, face	Rash, face (butterfly) and V of neck
Heliotrope eyelids	
Suffusion, face and neck	Purpura including fingertips
Plaques over knees, elbows, knuckles	
Poikiloderma	
Pigmentation	Mucosal lesions
Hirsutism	
Calcinosis	

posure to the sun seems to have precipitated the illness. Early symptoms include general malaise, listlessness, irritability, anorexia and, sometimes, abdominal pains with vomiting.

The skin eruption in dermatomyositis is polymorphic. Edema of the face beginning in the periorbital regions is seen early. Edema may become generalized. The eyelids show a faint heliotrope hue associated with tiny telangiectatic vessels. A dusky erythematous suffusion appears on the face and gradually extends over the neck and shoulders. Urticaria may be an early sign. Occasionally photosensitivity is noticed. Later, small, shiny, bluish-red plaques appear over the bony protuberances of the knuckles, elbows, knees and ankles. These may persist or fade into atrophic patches. Alopecia is commonly seen. As the disease progresses,

the skin becomes pigmented and telangiectatic to form the mottled pattern known as poikiloderma. Hypertrichiasis is frequent. Calcinosis cutis occurs in some 40 per cent of those who recover.<sup>4,7</sup> This may appear as single nodules over the bony prominences, or as a diffuse process involving the soft tissues and the tendinous sheaths where the disease has been most active. Relapses are rare.

*Systemic Lupus Erythematosus.*—In contrast to the insidious onset and irregular pattern of dermatomyositis, early systemic lupus erythematosus is usually characterized by an abrupt febrile illness, pain and swelling of the joints with a sense of profound fatigue and prostration. A brief bout of infection of the upper respiratory passages may have preceded the acute illness by a period of weeks or months. Not infrequently the acute reaction is precipitated by severe sunburn. The typical butterfly erythema of the face is an early sign and may appear first of all. The rash may become generalized or become localized to the palms and soles or tips of the fingers and toes in association with petechiae. The eruption may come and go with relapses and remissions of the systemic reaction. Mucosal lesions as well as bouts of purpura occur in the more seriously ill. Occasionally purpura is the presenting sign of the disease.

During the acute phase the pulse is fast and often irregular, and cardiac murmurs appear. Pericardial and pleural friction rubs are common. Effusions soon develop. In children, signs of renal irritation and nephritis occur more commonly than in adults, and forebode a poor prognosis. Involvement of the central nervous system in the form of hemiparesis, coma and convulsions may occur during febrile reactions or as a terminal phenomenon.

#### Laboratory Characteristics (Table 2)

*Dermatomyositis.*—In contrast to lupus erythematosus, dermatomyositis causes only minimal abnormal findings in the conventional laboratory examinations. Mild anemia may be present, but the leukocyte count is usually within normal range. The sedimentation rate, except in the severely ill, is never elevated to the degree that it is in systemic lupus erythematosus. The urine is usually



Table 2

**Dermatomyositis Versus Systemic Lupus  
Erythematosus in Childhood:  
Laboratory Findings**

Dermatomyositis	Systemic lupus erythematosus
Generally normal or absent	Pancytopenia
	Evidence of renal damage
	Sedimentation rate high to very high
	Abnormal serologic reaction for syphilis
	Low serum proteins with high gamma globulin
	L.E. cell test: positive reaction
Abnormal electromyographic findings	
Muscle-biopsy findings distinctive	
Skin-biopsy findings nondistinctive	Skin-biopsy findings distinctive
Basal metabolic rate increased	
Serum (glutamic oxalacetic) transaminase increased	

normal. The serum proteins may be altered in the late stages. The L.E. clot test gives a negative reaction. Exceptionally, a weakly positive reaction may be obtained but this is not consistent. The electrocardiogram may reveal myocardial damage. The basal metabolic rate is commonly elevated. Biopsy of affected skin shows a nonspecific inflammatory reaction.

Most valuable information can be obtained from electromyographic study, muscle biopsy, and the measurement of serum transaminase. Definite electromyographic changes indicative of myositis may be observed, both in a resting and in a contracted muscle. Electromyographic examination may help to point out the site most likely to yield fruitful information on muscle biopsy. Pathologic changes observed in muscle vary with the intensity of the disease. These may range from normal structure to complete

dissolution of the parenchyma with fibrous replacement. Evidence of myositis is only one link in the diagnostic chain. Recent experience indicates that one of the most valuable laboratory tools in the diagnosis and appraisal of activity of dermatomyositis is measurement of the serum (glutamic oxalacetic) transaminase.<sup>8,9</sup> Normal values rarely exceed two micromoles per milliliter per hour. In the active stages of dermatomyositis the values may reach a level of 36.5 micromoles, varying according to the acuity of the process. While the test is nonspecific (abnormal values have been reported in cases of lupus erythematosus and in assorted muscular disorders), it more or less measures the degree of muscular degeneration. Normal values are never found in active dermatomyositis.

*Lupus Erythematosus.*—A high sedimentation rate is a characteristic and constant finding. Often it exceeds 100 mm. (Westergren method). More or less anemia is present, according to the stage of the disease. Occasionally a picture of acute hemolytic anemia is an early sign. Leukopenia is common, although leukocytosis may occur. The number of platelets is generally decreased. Earliest signs of the disease may be those of idiopathic thrombocytopenic purpura. In some cases, splenectomy is performed, with the development of the fulminating lupus process a late consequence. The values for serum proteins are usually below normal, with reversal of the albumin-globulin ratio by reason of an elevated level of gamma globulin. The blood test for syphilis may give a positive reaction on a nonspecific basis. The L.E. clot test in acute lupus erythematosus almost invariably gives a positive reaction when the process is well established. In the early stages, in subacute forms, the reaction may be negative or equivocal. In children, signs of renal irritation may occur early in the disease. More than half the patients show renal involvement at the time the diagnosis is first made. Signs of renal failure predicate a bad prognosis. Retinal changes in the form of fluffy exudates are less commonly seen in children than in adults. The histopathologic features of the skin lesions in acute lupus erythematosus are distinctive.

### Differential Diagnosis (Table 3)

Table 3  
Dermatomyositis Versus Systemic Lupus  
Erythematosus in Childhood:  
Differential Diagnosis

Dermatomyositis	Systemic lupus erythematosus
Early	Rheumatic fever
Polymyositis	Acute rheumatoid arthritis
Rheumatic fever	Subacute bacterial endocarditis
Muscular dystrophy	Dermatomyositis
Myasthenia gravis	Thrombocytopenic purpura
Poliomyelitis	Acute glomerulonephritis
Periarteritis nodosa	Erythema solare
Addison's disease	Urticaria
Trichinosis	Dermatitis medicamentosa
Hyperthyroidism	
Anorexia nervosa	
Erythema solare	
Lupus erythematosus	
Late	
Scleroderma	
Lupus erythematosus	
Porphyria	
Cushing's syndrome	
Muscular dystrophies	
Idiopathic calcinosis	
Poikiloderma	

*Dermatomyositis.*—The true nature of the illness is rarely suspected at first. In only four of the 40 cases recorded by Roberts and myself was dermatomyositis properly considered at the time of admission to the clinic. Cutaneous signs may be absent in the beginning. In some instances a puzzling form of polymyositis may precede the eruption by months or as long as two or three years. The condition may be confused with muscular dystrophy. When the eruption is present and the joints are affected and arthralgia is present, the condition may resemble lupus erythematosus, rheumatic fever or erythema solare. Rare conditions such as periarteritis nodosa, trichinosis and brucellosis also come into consideration.

*Lupus Erythematosus.*—Early signs of acute lupus erythematosus in children often comprise a facial eruption, fever and arthralgia. Sometimes the eruption is precipitated by severe sunburn. The earliest considerations include the possibility of acute rheumatic fever or subacute bacterial endocarditis. The eruption may resemble ery-

thema solare or a drug reaction. Pulmonary signs may occur initially in the form of pleural pains, effusions or pneumonia. In rare instances the renal changes predominate early. Now and then a preliminary bout occurs resembling upper respiratory infection, usually with fever and symptoms of fatigue out of proportion to what would be expected. Recovery is not complete and relapse occurs within a few weeks or months. Bouts of purpura may occur as early signs, or anemia of severe degree may appear. The clinical pattern of systemic lupus erythematosus has taken the place of that of syphilis as a mimic of most severe systemic diseases.

### Pathology (Table 4)

Table 4  
Dermatomyositis Versus Systemic Lupus  
Erythematosus in Childhood:  
Pathology

Dermatomyositis	Systemic lupus erythematosus
Degeneration of muscular parenchyma	Fibrinoid degeneration of small blood vessels
No renal changes	"Wire-loop" glomerulonephritis
Cardiac changes infrequent; occasionally myocarditis	Libman-Sacks endocarditis, pericarditis
Diffuse calcinosis (especially in females)	Calcinosis very rare
Associated malignancies (in adults)	No malignancies

*Dermatomyositis.*—Widespread degenerative changes occur throughout the parenchymal and interstitial tissues of the skeletal muscles and, sometimes, the heart. Repair occurs by fibrosis with loss of function and with development of calcinosis in the affected tissues. Death may result from failure of the muscles of deglutition and of the diaphragm, followed by pneumonia. Death may occur from abdominal complications such as a ruptured gut, and at necropsy mucoid degeneration of fat may be present with significant alterations in the walls of the blood vessels.

*Lupus Erythematosus.*— Widespread edema and diffuse fibrinoid degeneration of the connective tissue are invariably present, but the findings at necropsy may be disap-



pointing. Pericarditis and Libman-Sacks disease commonly occur. Pleuritis, interstitial pneumonitis, atelectasis and terminal bronchopneumonia are not uncommon. Widely scattered vascular lesions of the central nervous system may be found. Pathologic changes in the kidney, consisting of hyaline thickening of the capillary loops, occurrence of hematoxylin bodies and focal necrosis, and proliferative glomerulonephritis with the characteristic "wire-loop" changes of the basement membranes are distinctive.

### Etiology

Nothing is known about the etiology of these two diseases. In systemic lupus erythematosus, evidences of a hypersensitive state akin to that of periarteritis nodosa have been presented, but these are disputed.

### Course

*Dermatomyositis.*—In children the disease is usually more severe than in adults. The mortality rate in childhood approximates 25 per cent or more. On the one hand, only a few muscles may be involved and the child may recover completely; on the other hand, there may be a fulminating course with edema outstanding and with death occurring a few weeks or months after the onset of symptoms. Few patients escape residual debility. Remissions are less common than in lupus erythematosus but they may occur. Patients in our series who survived had reached a static stage at the end of five years. Some degree of calcinosis of the skin and the affected muscles appeared in about 40 per cent of the cases.

*Lupus Erythematosus.*—The disease may occur in the subacute form with clinical and laboratory features of mild degree, and the result of the L.E. clot test may remain negative. The diagnosis here is usually controversial. Acute systemic lupus erythematosus in childhood is serious. During the early months of the disease, bouts of fever may occur with or without an eruption. Unfavorable reactions to common drugs or other procedures such as blood transfusions are commonly noted. More than half the patients succumb within the first two years of the disease, death resulting from pneumonia or, more likely, progressive renal fail-

ure. Evidences of involvement of the nervous system are usually late. Calcinosis is rare.

### Treatment (Table 5)

Table 5  
Dermatomyositis Versus Systemic Lupus  
Erythematosus in Childhood:  
Outcome

Dermatomyositis	Systemic lupus erythematosus
25 per cent dies within 2 years	70 to 80 per cent die within 2 years (usually cardiorenal)
20 per cent recover with minimal deformity	Early remissions not uncommon
55 per cent become chronic with muscular deformity	Remainder supported by steroids mostly, or antimalarials
Extensive calcinosis is common	

*Dermatomyositis.*—Since the cause of the disease is unknown, treatment is empiric. The measure of the serum transaminase is a good index of the degree of severity of the disease. Whether steroids are of value in the control of dermatomyositis is controversial, but sufficient benefits have been demonstrated to justify an attitude of guarded optimism. The use of ACTH is usually not practical in children. Large doses of hydrocortisone in the range of 200 mg. per day must be initiated in the acute stages and maintained according to the severity of the disease. Large doses of steroids are usually well tolerated by children but the usual complications of steroid therapy must be anticipated. Of the newer drugs, triamcinolone may be thought to be useful because of its minimal influence on the electrolytes but, on the other hand, peptic ulcers associated with the use of triamcinolone are being reported and, in certain patients on long-term therapy, muscular weakness develops insidiously<sup>10</sup> and is particularly undesirable in dermatomyositis. The sick patient is completely bedridden but the recovering patient should not be immobilized too long. Physical therapy should be started early in the disease to anticipate and prevent contractures. The value of antimalarial drugs in the treatment of dermatomyositis has not been established.

*Lupus Erythematosus.*—The aim of treatment in lupus erythematosus is control of symptoms, and this can be accomplished by rest in bed and the use of steroids. The choice of drug rests with the experience of the observer.<sup>11</sup> Cortisone preparations should be used strictly according to indications, and in the early cases they should not be given at all. Of the antimalarials, chloroquine, 250-mg. tablets given two or three times a day, may be helpful; such treatment should be limited to the chronic phases or to the stages of recovery. Acetylsalicylic acid and rest in bed may be sufficient to control symptoms. It is not a good idea to direct treatment with steroids toward a certain phase of the disease or of the laboratory picture such as a positive result with the L.E. test, or to interrupt treatment should the reaction of the L.E. test be reversed to normal.

In the early stages of the disease, remissions may occur, and at such a time it is particularly important to maintain control of physical activities and to emphasize that the child be kept at rest, out of school and out of ordinary activities of play. In the fulminating cases, enormous doses of steroids may be required to control symptoms; treatment should be regulated carefully according to indications and with an anticipation of unfavorable complications. In children, unfortunately, signs of renal irritation and nephritis appear during the first few months in a large number of cases. These changes may fluctuate from time to time, but usually they bode ill. In the subacute phases of the disease, the symptomatic management by means of steroids or other measures should be on the conservative side. The administration of acetylsalicylic acid or antimalarials may suffice. The use of accessory measures such as blood transfusions

is helpful but transfusion reactions may be anticipated. Occasionally the presenting symptoms are those of purpura with thrombocytopenia, and splenectomy may seem to be indicated. When this syndrome appears as the early phase of lupus erythematosus, it is my experience that splenectomy does not alter the eventual course of the disease.

Under few circumstances is there any rule of thumb for the management of systemic lupus erythematosus. A patient whose disease is under apparent control with steroids may develop hidden complications in the form of a masked infection, which may be uncontrollable. In no other condition is the management so highly individualized.

## REFERENCES

1. Wedgwood, R. J. P., Cook, C.D. and Cohen, Jonathan: Dermatomyositis: Report of 26 Cases in Children With a Discussion of Endocrine Therapy in 13. *Pediatrics*. 12: 447-466 (Oct.) 1953.
  2. Roberts, H. M. and Brunsting, L. A.: Dermatomyositis in Childhood: A Summary of 40 Cases. *Postgrad. Med.* 16: 396-404 (Nov.) 1954.
  3. Everett, M. A. and Curtis, A. C.: Dermatomyositis: A Review of Nineteen Cases in Adolescents and Children. *A.M.A. Arch. Int. Med.* 100: 70-76 (July) 1957.
  4. Christianson, H. B., Brunsting, L. A. and Perry, H. O.: Dermatomyositis: Unusual Features, Complications, and Treatment. *A.M.A. Arch. Dermat.* 74: 581-589 (Dec.) 1956.
  5. Zetterstrom, Rolf and Berglund, Gunilla: Systemic Lupus Erythematosus in Childhood: A Clinical Study. *Acta Paediat.* 45: 189-204 (Mar.) 1956.
  6. Brunsting, L. A. and Rollins, T. G.: Lupus Erythematosus in Childhood. (Unpublished data.)
  7. Muller, S. A., Winkelmann, R. K. and Brunsting, L. A.: Calcinosis in Dermatomyositis: Observations on the Course of the Disease in Children and Adults. *A.M.A. Arch. Dermat.* (In press.)
  8. Siekert, R. G. and Fleisher, G. A.: Serum Glutamic Oxalacetic Transaminase in Certain Neurologic and Neuromuscular Diseases. *Proc. Staff Meet., Mayo Clin.* 31: 459-464 (Aug. 8) 1956.
  9. de Moragas J. M., Perry, H. O. and Fleisher, G. A.: Serum Glutamic Oxalacetic Transaminase in Dermatomyositis. *J.A.M.A.* 165: 1936-1938. (Dec. 14) 1957.
  10. Dubois, E. L.: Triamcinolone in the Treatment of Systemic Lupus Erythematosus. *J.A.M.A.* 167: 1590-1599 (July 26) 1958.
  11. Dubois, E. L.: Evaluation of Steroids in Systemic Lupus Erythematosus With Particular Emphasis on Triamcinolone and Methylprednisolone. *Metabolism*. 7: 509-525 (July) 1958.
- Mayo Clinic, Rochester, Minnesota

ANTIPATHY, *n.* The sentiment inspired by one's friend's friend.

*From the Devil's Dictionary by Ambrose Bierce —*

Sagamore Press, Inc.



## *Experimental Background for*

# OPEN HEART SURGERY *at the* *University Hospital, in Oklahoma City, Okla.\**

NAZIH ZUHDI, M.D., JOHN M. CAREY, M.D., ALLEN E. GREER, M.D.,  
PEGGY JOHNSON, R.N. and MARY LOU FAGGELLA, R.N.

The past few years have brought about an impressive variety of techniques for successful direct vision intracardiac surgery. Hypothermia was used first but because of the limitation of time imposed upon the surgeon, it has been largely replaced by other techniques.

Reduced to its simplest form, a systemic perfusion apparatus consists of a pump to replace the heart and an oxygenator to fulfill the vital functions of the lungs.

*The pump:* Several simple pumps are capable of taking over the function of the heart. The commercially available sigma-motor pump\*\* has proved to be a very dependable piece of machinery.<sup>1</sup> Several models are available and the latest TM 2 is compact, sturdy, beautifully encased, easy to maintain, simple to set, quick to calibrate and capable of delivering high outputs. It needs no sterilization and the investment is reasonable. One of the authors (N.Z.) had personal experience with the sigmamotor,<sup>1</sup> modified Dale-Schuster<sup>2</sup> and United Shoe Machinery Corporation\*\*\*<sup>3</sup> pumps. They are all adequate for perfusion purposes. The sigma-motor pump encompasses so many desirable features that it was adopted by our group.

*The oxygenator:* Oxygenators, at present, fall in one of three basic types: 1) Bubble oxygenators in which oxygen is directly introduced into the venous blood, the most eloquent example being the one developed by DeWall and Lillehei.<sup>1</sup> An oxygenator based on the same principles and weighing

## THE AUTHORS

Certified by the American Board of Surgery, Nazih Zuhdi, M.D., graduated from the American University of Beirut, Lebanon in 1950. He is a member of the American Heart Association.

Work on this paper completed during tenure of Chief Resident, Thoracic Surgery, University of Oklahoma Medical Center, Oklahoma City, Oklahoma.

John M. Carey, M.D., graduated from Harvard Medical School in 1945. He specializes in Thoracic Surgery and is an Instructor in Surgery at the University of Oklahoma School of Medicine.

Doctor Carey is certified by both the American Board of Surgery and the American Board of Thoracic Surgery.

Since graduating from the University of Oklahoma School of Medicine in 1942, Allen E. Greer, M.D., has been certified by the American Board of Surgery and the American Board of Thoracic Surgery.

Doctor Greer is Assistant Professor of Surgery at the University of Oklahoma School of Medicine and a member of the American Association for Thoracic Surgery.

a few hundred grams has great potentialities.<sup>3</sup> 2) Film oxygenators in which the blood is spread over surfaces and thus comes in contact with ambient oxygen, such as those constructed by Gibbon, Dennis<sup>2</sup> and Kay-Cross and 3) membrane oxygenators in which a membrane permeable to oxygen intervenes between blood and oxygen, such as the one described by Clowes.

Several types of heart-lung machines have been used successfully in this country. Research is going on in this† and other centers to develop new and better ones. The problem

\*Supported by a grant from The Oklahoma State Heart Association, grant No. H-1889 from the National Heart Institute (U.S.P.H.S.) and Kimray, Inc., Oklahoma City, Okla.

\*\*Sigamotor, Inc., Middleport, New York.

\*\*\*United Shoe Machinery Corporation, Beverly, Massachusetts.

†In conjunction with the Department of Petroleum Engineering at Oklahoma University, Norman, Oklahoma and Kimray, Inc., Oklahoma City, Okla.

that faced us was to choose one for immediate clinical application. Being acquainted (N.Z.) with the first two categories of oxygenators,<sup>2, 4, 5</sup> the following factors governed our decision as to the type to be adopted.

1) Safety to patient: All three types are relatively safe. The bubble oxygenator has been used on a greater number of patients than any other type and the large series of Lillehei and Cooley demonstrate its wide margin of safety and usefulness. The biochemical and blood destruction alterations are roughly the same. The blood-brain barrier disruption is definitely minimal when a DeWall bubble oxygenator is used in its latest modification with the cannister preceding the helix.<sup>6</sup> The studies performed by our group on the brains of 12 dogs perfused à la Lillehei revealed no gross pathology and no major microscopic alterations.<sup>7</sup>

2) Ease of assembly: The sterilized tubing in a DeWall bubbler is mounted and primed with blood in about forty-five minutes. Calibration takes about five to ten minutes longer.

3) Simplicity of maintenance: The tubing in a DeWall oxygenator is disposable. Blood does not come in contact with any part of the permanent setup (except the cannister and the metal connectors) and thus cleaning is reduced to a minimum. Nothing could go wrong with the oxygenator that will need any specialized know how in mechanics, engineering and workmanship. A machine shop and a full time mechanic are used by some groups who operate a filter as an oxygenator.

4) Facility of performance: One person may run the DeWall-Lillehei heart-lung machine. We trained two nurses to run it independently and jointly. Each has done a most trustworthy performance in the last forty perfusions.

*The heart-lung machine:* Thus a DeWall-Lillehei heart-lung machine was adopted by our group for the present time (Fig. 1). The only difference lies in the filter used.\*

*Animal perfusions:* The authors have performed collectively, individually and/or as

a group more than 300 perfusions. The results obtained in the last 27 consecutive cardiac by-passes will be reported. The dogs were perfused shortly following their acquisition. Thus we knew very little of their general condition. Their weight varied between 12 and 30 kilograms. The operative technique was clean but not aseptic. The flow rates varied between 40 and 70 ccs./kilogram of body weight. The perfusions lasted about thirty minutes. A right atriotomy was performed, an interauricular defect created and closed in 15 dogs. Dog #26 had coronary retroperfusion for 15 minutes.<sup>5</sup> Penicillin was administered on the day of the perfusion.

*Results:* All dogs survived the procedure as far as the immediate postoperative period is concerned. Five dogs failed to regain their preoperative health.

*Causes of death:* Dog #1 and dog #21 died six and seven days postoperatively. The former was not posted. The latter had empyema (the only infection in this series despite the lack of asepsis). Dog #4 was sick and emaciated prior to perfusion and thoracotomy revealed a huge tumor of the lung and mediastinum. Dog #6 had an endotracheal tube misplaced in the esophagus for about fifteen minutes before the mistake was discovered. This dog was anoxic for that period of time and he expired the night of the perfusion. Dog #15 had an inadvertant puncture of the aorta with blood loss and unavailability of blood for replacement.

*Discussion:* In a sizeable group of patients in the State of Oklahoma direct vision is needed for definitive repair of their congenital and acquired heart disease. It is estimated that about 1,000 infants are born each year in the State of Oklahoma with congenital heart disease and more than half may need open heart surgery. If the repair of their defect is not performed, their life expectancy is greatly shortened and they do not become useful members of society. Additional thousands of persons have acquired heart disease which is not amenable to correction by the conventional techniques of "blind" heart surgery. Because of the load of patients to be dealt with, several groups

\*Double metal filter graciously supplied by Abbott, North Chicago, Illinois.



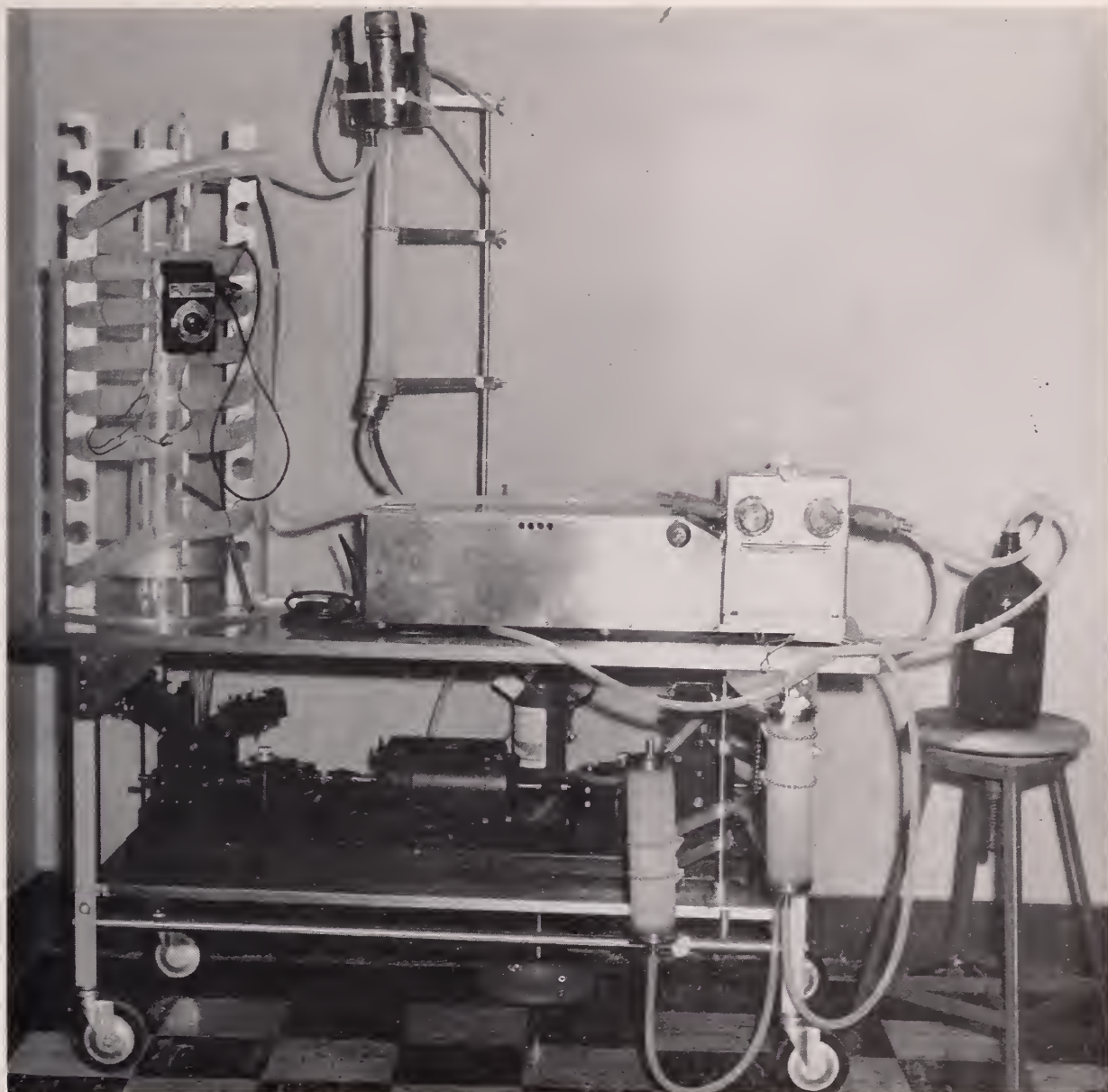


Figure 1. The overall picture of the DeWall-Lillehei heart-lung machine as assembled in our laboratory with some of its latest modifications. The only difference lies in the filter used.

performing this type of surgery will be needed in the State of Oklahoma.

*Summary:* A DeWall-Lillehei type heart-lung machine has been adopted by our group at the present time. It has proved itself to be safe, efficient and dependable in our experimental laboratory.

#### BIBLIOGRAPHY

1. DeWall, R. A., Warden, H. and Lillehei, C. W. The helix reservoir bubble oxygenator and its clinical application. *Extracorporeal Circulation*, Charles C. Thomas, Publisher, pages 41-56, 1958.
2. Newman, M. N., Stuckey, J. H., Levowitz, B. S., Young, L. A., Dennis, C., Fries, C., Zuhdi, N., Karlson, K., Adler, S. and Gliedman, M. Complete and partial perfusion of animal and human subjects with the pump oxygenator. *Surg.*, vol. 38, pg. 30-37, 1955.

3. Gott, V., DeWall, R. A., Paneth, M., Zuhdi, N., Weirich, W., Varco, R. and Lillehei, C. W. A self contained disposable oxygenator of plastic sheet for intracardiac surgery; experimental development and clinical application. *Thorax*, vol. 12, pg. 1-9, 1957.
4. Paneth, M., Zuhdi, N. and Weirich, W. Acid base balance during prolonged cardiorespiratory bypass. Read before The American Association for Thoracic Surgery in Chicago, May 4-7, 1957.
5. Gott, V., Gonzales, J., Zuhdi, N., Varco, R. and Lillehei, C. W. Retrograde perfusion of the coronary sinus for direct vision aortic surgery. *Surg., Gynec. & Obst.* vol. 104, 1957.
6. Lillehei, C. W. Personal communication to Zuhdi, N.
7. Zuhdi, N., Joel, W., Carey, J., Faggella, M. and Greer, A. Cerebral changes during cardiorespiratory bypass using the helix reservoir bubble oxygenator. To be published. *J. Thor. Surg.* (in press).
8. Faggella, M., Zuhdi, N., Greer, A., Carey, J. and Schilling, J. A method of eliminating air bubbles in a bubble oxygenator. *Am. J. Surg.* Vol. 96: 697-697, 1958.

Nazih Zuhdi, M.D.

430 N.W. 12th, Oklahoma City, Oklahoma

# GENITAL TRACT DISCHARGE

DIXON N. BURNS, M.D.

Genital tract discharge is a common symptom which leads a woman to consult her physician. The classic triad of symptoms in gynecology is pain, bleeding, and discharge. The cause of the discharge should be carefully determined by examination, and, when necessary by culture, suspension, X-ray, and surgical exploration.

## Discharge Due to Vaginitis

Vaginal cultures and suspensions were studied for 25 consecutive private patients whose chief complaint was vaginal discharge with the following results:

Trichomonas		Candida		Bacteria	
pure	c. bact.	pure	c. bact.	pos.	neg.
1	3	5	4	20	5
Totals 4		9		25	

One patient had no Trichomonas or Candida and culture revealed a pure growth of *Lactobacillus acidophilus* only.

The organisms present in the 20 patients with positive bacteriological reports were as follows:

Staph. aureus	
coag. neg.	5
coag. pos.	3
Streptococcus	
gamma	4
beta hemolytic	2
Escherichia coli	5
Pseudomonas	4
Hemophilus vaginalis	3
Other	3

It is of interest to physicians concerned with hospital infections due to *Staphylococcus aureus*, coagulase positive, that three cultures yielded this organism. Although "Nonspecific vaginitis" was reported by Gardner' as due almost entirely to *Hemophilus vaginalis*, only three of this group of patients yielded this organism. No patients in this series took antibiotics within one month prior to culture.

Studies of vaginal secretions are becoming

## THE AUTHOR

Dixon N. Burns, M.D., Tulsa physician, graduated from Vanderbilt University School of Medicine in 1945. He is certified by the American Board of Obstetrics and Gynecology and his practice is limited to that specialty.

ing increasingly complex. In previous years Trichomonas was the most frequent cause of discharge, with thrush being a less frequent offender. Undoubtedly the use of antibiotics has influenced the vaginal bacterial flora in recent years, as was evidenced by findings of positive cultures for Candida in nine out of 25 patients, only four with Trichomonas. The presence of four cultures of *Pseudomonas*, three of *Staphylococcus aureus*, coagulase positive, and two of beta hemolytic *Streptococcus* would indicate that vaginal discharge could be a serious contaminant in hospitals and a source of continuing infections.

## Discharge Due to Pathologic Causes

Abnormal secretion may occur as a result of pathologic disturbance in any portion of the genital tract from the vagina to the ovaries. This condition may be the result of direct disease, such as cervicitis, or may result secondarily from disturbances elsewhere, such as endometrial hyperplasia due to ovarian dysfunction. The following case histories demonstrate the importance of pursuing the etiology of genital tract discharge until it is definitely established.

Case #1. This 21-year-old gravida 1 presented herself for examination because for three months a bloody vaginal discharge had occurred, lasting seven to ten days each month. Examination showed no abnormality responsible for the bleeding. Endometrial biopsy showed degenerating chorionic villi, evidence of an old incomplete abortion.

Case #2. In a 45-year-old gravida 1, whose chief complaint was vaginal discharge of three months duration, pelvic examination showed a moderate cystocele and a



normal-sized uterus. The cervix was the site of a gangrenous polyp. D & C done at the time of removal of a cervical polyp showed endometrial polypi with no evidence of malignancy.

Case #3. A 22-year-old gravida 1 complained of vaginal discharge and infertility of 18 months' duration. Pelvic examination showed the only abnormality to be an extensive cervicitis, which five cauterizations were required to heal. The patient is now five months pregnant, with a grossly healthy cervix.

Case #4. This 50-year-old gravida 1 had had vaginal discharge for three months. Examination showed the uterus to be slightly enlarged; an endometrial biopsy was performed which revealed a glandular cystic hyperplasia. Therapy with male hormones for three months has resulted in cessation of symptoms.

Case #5. A 56-year-old gravida 3 was examined because she had had a slightly bloody vaginal discharge for three weeks. On pelvic examination, the only abnormality was stenosis of the cervix and slightly enlarged uterus. She was hospitalized for D & C, at which time about 50 cc. of fluid was released from the uterine cavity. Her pyometrium has not recurred over the past 2½ years.

Case #6. This 41-year-old gravida 3 complained that over a six-month period of time bloody vaginal discharge had occurred every two weeks, lasting six days. Pelvic examination showed a normal-sized uterus with a second degree prolapse. Endometrial biopsy was reported as showing endometrium, estrin phase. During subsequent months this patient developed profuse menorrhagia and metrorrhagia. Vaginal hysterectomy showed the cause of the discharge to be multiple submucous myotoma.

Case #7. In a 45-year-old nulligravida who had hot flashes and occasional excessive vaginal discharge, examination showed an erosion of the anterior cervical lip about 1½ cm. in diameter. D & C and cone biopsy demonstrated early invasive carcinoma of the cervix. The patient is well with no evidence of tumor 18 months following irradiation therapy.

Case #8. Discharge began five months before examination in this 40-year-old gravida 3. It was clear and nonirritating in type and was not associated with bleeding. Pelvic examination revealed no cause for the discharge, but on endometrial biopsy the diagnosis was adenocarcinoma of the corpus uteri. This patient has no evidence of tumor now, 2½ years after radium application and hysterectomy.

Case #9. This 45-year-old gravida 4 had noted excessive vaginal discharge for three to four months. At times it would be sufficient to soil the patient's clothing, and she had on occasion wet the whole seat of her dress. Pelvic examination showed the only abnormality to be uterine enlargement to about twice normal size. Biopsy showed endometrium, progestin phase. Menstruation became profuse and the discharge more severe. Abdominal hysterectomy done two years ago showed the presence of endometrial polypi and a leiomyosarcoma in a degenerating myoma. The patient is now living and well.

Case #10. This 60-year-old gravida 5 had had episodes of watery vaginal discharge 12 weeks and eight weeks before examination. There had been no menstruation in 18 years following six X-ray treatments given for heavy menstruation. D & C done elsewhere (one week prior to examination) produced tissue diagnosed as malignant, type unknown. No abnormalities on pelvic examination were noted. At panhysterectomy and bilateral salpingo-oophorectomy one month ago, the diagnosis was adenocarcinoma arising in an endometrial polyp, with no extension into the myometrium.

### Conclusions

Genital tract discharge often requires continued observation, repeated examination and special laboratory aid to determine its cause. Discharge may be only worrisome to an itching and uncomfortable patient; it can be of gravest import, however, as demonstrated by the discovery of four malignancies in 35 cases comprising this report.

### BIBLIOGRAPHY

1. Gardner, Herman L., Damper, T. K., and Dukes, Charles D. American Journal of Obstetrics and Gynecology, Volume 73, Page 1080, May, 1957.

305 Utica Square Medical, Tulsa, Oklahoma



## *The Role of*

# RADIOISOTOPES *in* CLINICAL DIAGNOSIS

CARL W. SMITH, M.D. and PHILIP C. JOHNSON, M.D.

During the past decade radioisotopes have had an increasingly extensive use in clinical diagnosis. Many diagnostic tests have been proposed. Some have become the most reliable tests available for the diagnosis of certain diseases. Others have failed to be accepted and are not in general use. This plethora of new diagnostic procedures presents a problem as it is nearly impossible to estimate in advance the potential value of a proposed diagnostic test. The problem is not helped by the editorial policies of our medical journals which may publish an original description of a new diagnostic test but fail to publish subsequent information concerning the usefulness of the test in clinical practice.

The purpose of this paper is to review some of the diagnostic radioisotope tests available and to recommend those which, in our opinion, are useful for routine diagnosis in a clinical radioisotope laboratory not engaged in an extensive research program. A useful radioisotope test is defined as one which is, (1) More informative than conventional non-radioactive tests; (2) Simple enough to be easily used in a clinical radioisotope laboratory, and (3) Of sufficient differential value to separate without excessive overlapping the values in patients with the disease from the values in patients without the disease.

### **Disease of the Thyroid Gland**

#### *Iodine-131 Uptake Tests:*

The thyroid gland avidly removes or traps

### **THE AUTHORS**

Carl W. Smith, Jr., M.D., graduated from the University of Oklahoma School of Medicine in 1953 and is now an Instructor in Medicine there as well as Clinical Assistant in Medicine at the VA Hospital, Oklahoma City.

Doctor Smith served a residency at Barnes Hospital in St. Louis. He is a member of the Alpha Omega Alpha.

Since graduating from the University of Michigan School of Medicine in 1949, Philip C. Johnson, M.D., has specialized in Endocrinology. He is certified by the American Board of Internal Medicine and is now an Associate Professor of Medicine at the University of Oklahoma School of Medicine and Chief, Radioisotope Department, VA Hospital.

Doctor Johnson is a member of the American Association for Advancement of Science, American College of Physicians, Society for Experimental Biology and Medicine and Southwestern Society of Nuclear Medicine.

ingested iodide from the blood stream. Within the thyroid gland, the iodide is incorporated into thyroid hormones which are either released into the blood or stored in the colloid of the thyroid follicles. Radioactive Iodine-131 thyroid uptake tests measure the iodide trapping mechanisms. The thyroid iodine-131 thyroid uptake tests measure the relates adequately with the hormonal output and its peripheral effects on the somatic cells.



The absolute normal range obtained in the 24 hour uptake depends upon the instrumentation used, the presence of lead filters in front of the detector, and the container used to hold the 100% standard dose. Brucer et al have shown that the values obtained in the average clinical radioisotope laboratory vary widely from the true percent uptake in the thyroid gland.<sup>1</sup> We have used the modifications suggested by Brucer and have found that this decreased the normal range of the 24 hour uptake from 15-40% down to 5-21%. This decreased normal range, however, has not improved the clinical usefulness of this test.

The 24 hour radioactive iodine-131 uptake is the most widely used test for assessing thyroid function. It will separate from normal approximately 90% of patients with diffuse toxic goiter. The remaining thyrotoxic patients have test values within the upper normal range of euthyroid patients.<sup>2</sup> Determination of the uptake at either three hours or six hours after ingestion of the tracer dose may improve the differentiation of thyrotoxicosis from euthyroidism.<sup>2, 3</sup>

In hypothyroidism the 24 hour uptake is less useful since the separation of hypothyroidism from euthyroidism is not as distinct. In our experience a falsely low radioactive iodine-131 uptake is most commonly due to the ingestion of exogenous iodide contained in cough medicines, antispasmodics, vitamins, and in gall bladder and kidney x-ray dyes. In panhypopituitarism with secondary hypothyroidism we and others have noted that the 24 hour thyroid uptake may be in the low normal range.<sup>4</sup> In hypopituitarism, normal thyroid iodide trapping may be associated with decreased formation of thyroid hormones.<sup>5</sup> Rare cases of goiter with hypothyroidism may similarly show normal iodide trapping but decreased or abnormal formation of thyroid hormones. It is therefore unwise to depend solely upon the uptake tests for the diagnosis of hypothyroidism. In any evaluation of thyroid function, clinical judgment remains of paramount importance.<sup>6</sup> A careful discriminating history and physical examination will differentiate abnormal thyroid function about as effectively as any single laboratory test.<sup>7</sup>

The radioactive iodine-131 uptake has proven its value as a routine diagnostic procedure. Numerous other clinical thyroid function tests utilizing radioactive iodine have been described. These include the protein-bound I-131,<sup>8</sup> the urinary excretion of I-131,<sup>9</sup> the erythrocyte uptake of radioactive triiodothyronine,<sup>10</sup> and salivary excretion of I-131<sup>11</sup>. These tests cannot be recommended as replacements for the I-131 uptake test. They may provide additional information in borderline cases but their routine determination seems unnecessary.

### Diseases of the Gastrointestinal Tract

Isotopes may be used in gastrointestinal diseases in which there is decreased transfer of intraluminal fats or proteins to the lymph or blood. For convenience, this decreased transfer may be thought of as due to impaired digestion, as in pancreatic insufficiency, or to impaired absorption, as in malabsorption syndromes. The term malabsorption syndrome is used to include non-tropical sprue, tropical sprue, and celiac disease. The net result of feeding neutral fat or protein labeled with radioactive isotopes to patients with malabsorption syndromes or pancreatic insufficiency is that the radioactivity in the feces is higher than normal while decreased radioactivity is found in the blood. In some instances the radioactive isotope is subsequently excreted by the kidneys and may be measured in the urine. Several tests have been proposed to confirm the presence of steatorrhea and even to differentiate whether the steatorrhea is due to pancreatic disease or to a malabsorption syndrome.

#### A. *Radioactive Iodine-131 Labeled Triglycerides*

The net transfer of neutral fat across the intestinal wall may be estimated by ingestion of a fat meal containing a tracer dose of triglyceride, usually triolein, labeled with radioactive iodine-131. The percentage of the tracer dose which remains in the feces, or is transferred to the blood or urine, may be determined. Approximately 5% is normally present in the blood as lipid bound radioactivity four or five hours after ingestion of the tracer dose<sup>12</sup> and less than 2% remains in a 48 hour fecal specimen.<sup>13</sup> In malabsorption syndromes and in severe pan-

creatic insufficiency a larger per cent remains in the stool and less appears in the blood. As the radioactive labeled triolein is metabolized in the body, the iodine-131 is released and excreted in the urine. Normal and abnormal values for the urine excretion overlap considerably and are therefore of less diagnostic value than the blood and fecal determinations.

This radioactive test is a useful diagnostic aid. However, as a screening procedure for steatorrhea, determination of the serum carotene is simpler and probably as informative.<sup>14</sup> Furthermore, the results may be normal in neoplastic or inflammatory pancreatic disease if pancreatic insufficiency is not present. This test has not replaced total fecal fat determination, duodenal intubation with secretin stimulation or conventional x-ray studies for the thorough evaluation of a specific case. The clinical usefulness of this test seems limited except in large diagnostic and research centers.

#### *B. Radioactive Iodine-131 Labeled Fatty Acids*

Radioactive fatty acids may be used in the same manner as radioactive triglycerides. By determining the absorption patterns of both labeled triglycerides and of labeled fatty acid, it may be possible to differentiate steatorrhea due to pancreatic diseases from that due to disease of the intestinal mucosal cells, as in the malabsorption syndromes. Since fatty acids may be absorbed through the intestinal wall in the absence of pancreatic lipase it is plausible that a patient with fatty diarrhea due to pancreatic insufficiency might show a normal absorption pattern with the labeled fatty acids. On the other hand, a decreased absorption of radioactively labeled triglycerides would occur since pancreatic lipases would not be present in the gastrointestinal lumen to split the triglycerides to their constituent glycerol and fatty acids. Malabsorption syndromes should show decreased absorption of both triglycerides and fatty acids. Preliminary studies, using radioactive iodine labeled oleic acid, have been performed.<sup>15, 16</sup> In view of the uncertainty regarding the extent of triglyceride splitting necessary to effect its transfer across the

intestinal wall,<sup>17</sup> evaluation of this proposed differentiation must wait until the necessary clinical correlations have been made.

#### *C. Radioactive Iodine-131 Labeled Protein*

The use of albumin labeled radioactive iodine-131 in pancreatic disease has been explored.<sup>18</sup> This test is similar in principle to the use of radioactive triglyceride; if the proteolytic enzymes from the pancreas are lacking, little splitting of labeled albumin occurs and absorption will therefore be decreased. The test will diagnose severe pancreatic insufficiency but it will not separate pancreatic disease without pancreatic insufficiency from normals. Thus if marked pancreatic insufficiency is not present, results may be normal in the presence of pseudocysts, neoplasms of the body or tail, and in acute and chronic relapsing pancreatitis.

#### *D. Radioactive Iodine-131 Labeled Rose Bengal*

After intravenous injection, rose bengal is cleared from the blood by the polygonal cells of the liver and excreted into the biliary tract. Externally placed scintillation counters will detect the radioactivity in the body. If a counter is placed over the liver, a curve, supposedly measuring simultaneous uptake and excretion of labeled rose bengal, can be obtained.

Initially it was hoped that an accurate differentiation of hepatic jaundice from obstructive jaundice could be made. Early studies were promising. Further investigation has shown that the curve obtained from a single counter over the liver will not distinguish between cirrhosis and obstructive jaundice.<sup>19</sup> More elaborate techniques are being tested; by using multiple counters positioned over the head, liver and lower abdomen estimates of the blood clearance, liver uptake, and arrival time in the duodenum may be determined.<sup>20</sup> This refinement of technique is promising, but needs further investigation before it can be used routinely.

### **Diseases of the Blood**

Extensive research utilizing radioisotopes has resulted in important advances in our understanding of blood diseases. Their ap-



plications in clinical hematology have been more limited. Two diagnostic tests are widely used.

#### *A. Radioactive Cobalt-60 Labeled Vitamin B-12*

Vitamin B-12 is essential for normal red blood cell production; its normal absorption from the small intestine requires the presence of intrinsic factor from the stomach. In pernicious anemia a lack of gastric intrinsic factor results in decreased intestinal absorption of the vitamin. Decreased absorption is also found in the malabsorption syndromes and occasionally in intestinal stasis syndromes due to blind loops, strictures, and diverticulosis.

The absorption of ingested Vitamin B-12 tagged with cobalt-60 can be estimated by determining fecal excretion,<sup>21</sup> urinary excretion after a flushing dose of non-radioactive Vitamin B-12,<sup>22</sup> or by determining the uptake over its storage site in the liver.<sup>23</sup>

In the diagnosis of pernicious anemia the radioactive cobalt-60 Vitamin B-12 test has several outstanding advantages over the other clinical tests. Determination of the liver uptake by external monitoring or of the 24 hour urinary excretion is technically simple. Values for the hepatic uptake clearly differentiate patients with pernicious anemia from normal patients. Furthermore, the results are not affected by previous treatment with Vitamin B-12 and a definitive diagnosis may be made in the absence of hematological or neurological relapses. An additional advantage is that the macrocytic anemias of malabsorption syndromes and of intestinal stasis syndromes can be differentiated from pernicious anemia by the ingestion of intrinsic factor with the tracer dose of radioactively labeled Vitamin B-12.<sup>24</sup> In pernicious anemia the absorption is increased by the addition of intrinsic factor. This improvement in the absorption of Vitamin B-12 does not occur in other macrocytic anemias. This diagnostic test should be available in every clinical radioisotope laboratory.

#### *B. Chromium-51 Labeled Erythrocytes*

Erythrocytes can be tagged or labeled by incubation in a solution containing sodium chromate labeled with radioactive chrom-

ium-51. The labeled erythrocytes may be reinjected into the donor or any compatible recipient. The disappearance of the radioactivity from the blood can be followed in order to estimate the erythrocyte survival time in the serum. The survival time may be expressed as the erythrocyte half-life or, as in our technique, by the percentage of radioactivity remaining on the eighth day. The erythrocyte half-life obtained with radioactive Chromium-51 technique is not the true erythrocyte survival time since the radioactive chromium leaves the labeled erythrocytes at a gradual rate which is not related to their survival in the circulation.<sup>25</sup>

Labeled erythrocytes are used primarily to detect hemolytic states in which the erythrocytes are removed from the circulation and destroyed without regard to their age. This causes anemia only when erythrocyte destruction due to the hemolytic process is greater than the compensatory increase in erythrocyte production by the bone marrow. When the bone marrow is potentially normal, the diagnosis of hemolytic anemia can usually be made without determination of the erythrocyte survival time. However, when the bone marrow is markedly altered by other disease (e.g.—leukemia and myeloid metaplasia), the signs of compensatory bone marrow hyperplasia and increased erythrocyte production may be masked by the primary disease. In these situations, the erythrocyte survival time aids in determining if increased hemolysis is a major factor in the anemia. Unfortunately, even without hemolysis, erythrocyte survival time may be reduced in anemias. In one study only about 50% of the cases with hemolytic anemia showed a percentage of radioactivity remaining which was below the range found in cases with anemia but without clinically significant hemolysis.<sup>26</sup> This inability to clearly differentiate hemolytic anemia from anemia due to other causes considerably reduces the clinical usefulness of this test. It would seem that the use of chromium-51 labeled erythrocytes should not be considered for routine use in a smaller radioisotope laboratory. In a larger diagnostic center, this test should be available since it will aid considerably in the treatment of anemia accompanying chronic leukemias.

## Diseases of the Kidneys

Recent work with diodrast and serum albumin has shown that these substances, when tagged with radioactive iodine-131, can be used in the clinical diagnosis of renal disease. Two separate tests have been proposed. External counting techniques are used in both tests which is an advantage over renal function tests requiring cystoscopy and retrograde studies.

### A. *Radioactive Iodine-131 Labeled Diodrast:*

Diodrast excretion has been used for many years both as an x-ray contrast medium in pyelography and to estimate renal plasma flow. This substance is excreted quantitatively during its first circulation through the excretory area of the renal tubules. The diodrast clearance is therefore proportional to renal blood flow. This fact is utilized in the radioactive renogram. This test consists of placing a scintillation detector over each flank and recording graphically the uptake-excretion curve of the radioactive diodrast as it passes through each kidney. The shape of each curve depends on the vascularity, the tubular cell function, and patency of the upper urinary tract.<sup>27</sup> When properly used, the technique will detect unilateral kidney disease. Analysis of abnormal curves will allow inferences as to the nature of the renal disease. In general, this test supplies less information than does an intravenous pyelogram. Its clinical use would seem to be in large scale surveys of patients with hypertension. If unilateral renal disease can be ruled out the patient is spared the expense and discomforts of intravenous and retrograde pyelography. In an individual patient with hypertension and known renal disease, it would seem wiser to use an intravenous pyelogram.

### B. *Radioactive Iodine-131 Labeled Serum Albumin:*

Radioactive serum albumin can conveniently be used to determine individual kidney blood flow. The instrumentation is similar to that used in the diodrast renogram. Three scintillation detectors are used, one over the heart and one over each kidney. The recording instruments record the first passage of the tracer through the heart

and through each kidney. The cardiac output is determined from the heart curve as the total injected tracer dose passes through the heart and that portion passing through each kidney is then calculated by graphic analysis of the curves. When the cardiac output and the ratio between cardiac output and the ratio between cardiac output and individual kidney blood flow are known, the actual kidney flow can be easily calculated.<sup>28</sup>

While this technique has important research applications, its routine clinical use does not seem indicated. A knowledge of the individual kidney blood flow is not needed in most clinical problems for either diagnosis or therapy.

## Diagnosis of Cancer

Radioisotopes have been used to separate malignant tumors from other types of tumors. The basic philosophy behind these procedures is that if a definite diagnosis of malignancy can be made prior to biopsy the surgeon can plan his operation more effectively. If malignant disease can be excluded, surgery can be avoided. These techniques have been used extensively for tumors of the thyroid, eye and brain.

### *Phosphorus-32 for Tumors of Eye:*

After intravenous injection, phosphate is usually concentrated to a greater degree in malignant melanomas of the eye than in normal ocular tissues. By placing a Gieger-Mueller counter directly on the eyeball, the uptake of radioactive phosphorus-32 by the suspected lesion and by the normal ocular tissue can be estimated. If the uptake over the suspected lesions is at least 30% greater than over the normal area, the test is positive. Since biopsy of intraocular lesions is hazardous or impossible the need to justify enucleation preoperatively is obvious. This test is useful clinically but has important limitations.<sup>29, 30, 31</sup> False negative and false positive tests occur. The results can be regarded only as supplementary information which must be judiciously weighed along with the ophthalmoscopic findings.

### *Radioactive Iodine-131 for Thyroid Cancer:*

Thyroid carcinomas always concentrate less iodide than normal thyroidal tissue. De-



generated benign adenomas, which occur much more often than carcinoma, also concentrate less iodide than normal tissue. Various types of detectors and recording instruments have been designed to map out graphically the areas of iodine concentration over the thyroid gland. These diagrams, or scintigrams, may show a decreased concentration of radioactive iodide over an expanding neoplasm. A palpable nodule which concentrates less radioactive iodine may have nearly one chance in three of being malignant.<sup>32,33</sup> On the other hand, a clinically palpable nodule that concentrates iodide more avidly than the surrounding thyroid tissue has almost no chance of being a carcinoma. We have found only one "hot" nodule which was carcinomatous. Although the presence of a "cold" nodule statistically favors carcinoma, this alone is not an absolute indication for surgery. Other factors which will influence the decision for or against thyroidectomy include the consistency of the nodule, its growth rate, the presence or absence of other nodules, and the patient's age and sex. Our general experience has been that while the scintigram is useful in selected cases it is unnecessary and diagnostically unrewarding to perform a scintigram routinely.

One other use of the scintigram is in the localization and treatment of recurrent and metastatic thyroid carcinoma. After total thyroidectomy, metastases may concentrate sufficient radioactive iodine to determine their location and at the same time indicate whether treatment with radioactive iodine will be beneficial. Scintigrams can also be used to determine if a substernal mass is thyroid tissue.

#### *Brain Tumors:*

Various radioisotopes have been used to locate benign and malignant brain tumors prior to surgery.<sup>34</sup> These procedures depend upon the fact that the blood brain barrier, which impedes the uptake of most substances by the brain, is destroyed by tumors. These tumors will therefore concentrate several radioisotopes faster than normal brain. However, the difference in concentration between the tumor and normal brain is small regardless of the radioisotope used. As a result cystic tumors are apt to show a de-

creased concentration. In spite of this, several large centers use these techniques in all cases of suspected brain tumors. Undoubtedly the radioisotope procedures have found unsuspected tumors and have shown that clinically suspected tumors were actually cerebral-vascular accidents. The usefulness of these techniques in clinical practice is difficult to determine since no critically controlled series have been published. Until more information is available, these techniques should probably be reserved to medical centers for further investigation and research.

#### **Isotope Dilution for Volume Determinations**

Radioactive isotopes are particularly useful to determine quantitatively the size of a body space or compartment in which an ion or molecule is distributed. A known amount of the tracer is injected into the compartment. After sufficient time to allow complete mixing, the resulting concentration of the tracer in the compartment is determined and the size of the body compartment easily calculated. Total body water, extracellular water, exchangeable sodium and potassium, and chloride space may be estimated by using the appropriate radioactive isotope. At present, determinations of plasma volume and red cell mass have had wider clinical applications. Tracers are used which are distributed either with the red cells or with the plasma. Plasma volume and red cell mass can be measured directly.<sup>35, 36</sup> The blood volume must be derived from either the plasma volume or the red cell mass. Unfortunately calculation of the blood volume from either determination may be erroneous in certain diseases.

#### *Plasma Volume*

Radioiodinated serum albumin can be conveniently used to measure plasma volume since very little albumin is lost from the intravascular compartment during the time required for adequate intravascular mixing. In the normal individual, plasma volume is about 40 ml/kg. body weight. Determination of the plasma volume is a simple useful clinical test which should be available in most radioisotope laboratories.<sup>35</sup>

We have found that determination of

plasma volume is of considerable use in separating neurogenic shock from shock due to blood loss. This differential is especially important when shock occurs following abdominal or thoracic surgery. In neurogenic shock, the plasma volume is nearly normal. On the other hand, shock due to blood loss will occur when 500 ml or more of plasma have been lost from the circulation.

### *Red Cell Mass*

Radioactive chromium-51 tagged erythrocytes can be used to estimate the circulating red cell mass<sup>36</sup> or the whole blood volume.<sup>37</sup> The normal value for the red cell mass is 32. ml/kg. of body weight. Like the determination of plasma volume, the red cell mass may be used to differentiate neurogenic shock from shock due to blood loss. Since changes in the red cell mass lag behind the plasma volume changes following blood loss, this is a less sensitive measure of circulating volume than the plasma volume determination. Estimation of the red cell mass can also be used to separate polycythemia from erythemia due to a decreased plasma volume. Red cell mass determination cannot be used to separate polycythemia rubra vera from secondary polycythemia due to hypoxia since both conditions are associated with an increased red cell mass.

### **Discussion**

It would be impossible for each clinical radioisotope laboratory to standardize and have available all of the proposed diagnostic tests. Each laboratory must be selective, picking the diagnostic tests which are not only clinically useful but also applicable to its patient population and to the special interests of the physicians using its facilities.

The determination of the usefulness of a proposed test involves a time-consuming process during which the enthusiasm of the initial report is tempered by further critical evaluation and clinical correlation. This situation is complicated by commercial suppliers of radioisotope equipment who may prematurely promote a proposed test. It is quite analogous to the problems faced in the field of drug therapy.

After a diagnostic test has been accepted for clinical use, it must be standardized by

each laboratory performing the test before a normal range can accurately be stated. This is particularly necessary in radioisotope methods where slight variations in instrumentation may change the range of values indicating health or disease. Determining a normal range involves considerable time and effort, since the test must be done in many patients who do not have the disease in question. In addition each physician using the diagnostic test in his practice must understand the pitfalls which can mislead the physician using this test.

The selection of the best diagnostic tests for an individual laboratory is therefore dependent upon multiple factors. No categorical statements can be made as to which tests will be the most valuable. Realizing this, we have presented in Table 1 the diagnostic tests which in our opinion will give the most information for the effort entailed in their standardization and use in a small clinical radioisotope laboratory. It might be argued that other tests should be included. The kidney function tests, fat absorption techniques, and the tests for malignancies all seem promising; nevertheless their role in clinical diagnosis is as yet undefined. Further research and clinical investigation will undoubtedly result in additional widely accepted and useful radioisotope diagnostic tests.

### **REFERENCES**

1. Brucer, M., Oddie, T. H., and Eldridge, J. S.: Thyroid uptake calibration. I. Mock-iodine, a radioactive iodine gamma ray standard. July 25, 1956. Oak Ridge Inst. of Nuclear Studies, Inc., Tenn.
2. McConahey, W. M., Owen, C. A., Jr., Keating, F. R., Jr.: A clinical appraisal of radioiodine tests of the thyroid function. *J. Clin. Endocrinol.* 16: 724, 1956.
3. Schultz, A. L. and Zieve, L.: Diagnostic value and interrelationships of thyroïdal clearance, uptake, and rate of uptake in hyperthyroidism. *J. Clin. Endocrinol.* 16: 980, 1956.
4. Werner, S. C., Quimby, E. H., and Schmidt, C.: Use of tracer doses of radioactive iodine, I-131, in study of normal and disordered thyroid function in man. *J. Clin. Endocrinol.* 9: 342, 1949.
5. Jeffries, W. M., Kelly, L. W., Jr., Levy, R. P., Cooper, G. W., and Protty, R. L.: The significance of low thyroid reserve. *J. Clin. Endocrinol.* 16: 1438, 1956.
6. Rall, J. E.: The role of radioactive iodine in the diagnosis of thyroid disease. *Am. J. Med.* 20: 719, 1956.
7. Bauer, R. E.: The present status of the diagnosis of hyperthyroidism. *Ann. Int. Med.* 44: 207, 1956.
8. Middlesworth, L. V., Nurnberger, C. E. and Lipscomb, A.: A simplified sensitive test for thyroid function using PBI-131. *J. Clin. Endocrinol.* 14: 1056, 1954.
9. McArthur, J. W., Rawson, R. W., Fluharty, R. G., and Means, J. H.: The urinary excretion of radioiodine as an aid in the diagnosis of hyperthyroidism. *Ann. Int. Med.* 29: 229, 1948.



Table 1. RECOMMENDED RADIOISOTOPE TESTS

TEST	OUR NORMAL VALUES	DISEASES	COMMON PITFALLS
Thyroid I-131 Uptake	5-21% in 24 hours	Hyperthyroidism and myxedema	Falsely normal or low values due to ingested iodide, thyroid hormones, and antithyroid drugs. Falsely normal or high values in some cases of myxedema, renal insufficiency, and hypopituitarism.
CO-60 Vit. B-12 liver uptake	6-15% on 7th day	Pernicious anemia. Malabsorption syndromes.	False normal values due to delayed fecal excretion of unabsorbed tracer.
Cr-51 Red Blood Cell % Remaining	68-93% on 8th day	Hemolytic anemia.	Considerable overlap between hemolytic state and non-hemolytic anemia.
Radioiodine serum albumin plasma volume.	40 ml/kg body weight	Blood Loss	Value for any individual may vary widely from the mean value.

10. Hamolsky, M. W., Stein, M., Freedburg, A. S.: The thyroidal hormone-plasma protein complex in man. II. A new in vitro method for study of "uptake" of labeled hormonal components by human erythrocytes. *J. Clin. Endocrinol.* 17: 33, 1957.

11. Stein, J. A., Ferge, V. and Hochman, A.: The salivary excretion of I-131 in various thyroid states. *J. Lab. and Clin. Med.* 49: 842, 1957.

12. Beres, P., Wenger, J. and Kirsner, J. B.: The use of I-131 triolein in the study of absorptive disorders in man. *Gastroenterology*. 32: 1, 1957.

13. Shingleton, W. W., Baylin, G. J., Isley, J. K., Sanders, A. P., and Ruffin, J. M.: The evaluation of pancreatic function by use of I-131 labeled fat. *Gastroenterology*. 32: 28, 1957.

14. Wenger, J., Kirsner, J. B., Palmer, W. L.: Blood carotene in steatorrhea and the malabsorption syndromes. *Am. J. Med.* 22: 373, 1957.

15. Isley, J. K., Sanders, A. P., Baylin, G. J., Sharpe, K. W., Hymans, J. C., Ruffin, J. M., Shingleton, W. W., Wilson, J. R., Jr.: Use of I-131 labeled oleic acid in study of gastrointestinal function. *Proc. Soc. Exper. Biol. and Med.* 94: 807, 1957.

16. Duffy, B. J., Jr., and Turner, D. A.: The differential diagnosis of intestinal malabsorption with I-131 fat and fatty acid. *Ann. Int. Med.* 48: 1, 1958.

17. Zilversmit, D. B.: Current concepts of lipide metabolism. *Am. J. Med.* 23: 120, 1957.

18. Freeark, R. J., Kozoll, D. D. and Meyer, K. A.: The use of I-131 labeled albumin in the diagnosis of pancreatic disease. *Surgery*. 41: 268, 1957.

19. Brown, C. H. and Glasser, Otto: Radioactive (I-131 tagged) rose-bengal liver function test. *J. Lab. and Clin. Med.* 48: 454, 1956.

20. Nordyke, R. A., and Bland, W. H.: The differential diagnosis of biliary tract obstruction with radioactive rose-bengal. *J. Lab. and Clin. Med.* 51: 565, 1958.

21. Halsted, J. A., Lewis, P. M., Hvolball, E. E., Gasster, M. and Swendseid, M. E.: An evaluation of the fecal recovery method for determining intestinal absorption of Cobalt-60 labeled Vitamin B-12. *J. Lab. and Clin. Med.* 48: 92, 1956.

22. Rabiner, S. F., Lichtman, H. C., Messite, J., Watson, R. J., Ginsberg, V., Ellenbogen, L. and Williams, W. L.: The urinary excretion test in the diagnosis of Addisonian pernicious anemia. *Ann. Int. Med.* 44: 437, 1956.

23. Johnson, P. C., Bird, R. M. and Smith, C. W.: Liver counting of Cobalt-60 labeled Vitamin B-12 in the diagnosis of pernicious anemia. *South. M. J.* 51: 417, 1958.

24. Oxenhorn, S., Estren, S., Wasserman, L. R. and Aldersberg, D.: Malabsorption syndrome: Intestinal absorption of Vitamin B-12. *Ann. Int. Med.* 48: 30, 1958.

25. Necheles, T. F., Weinstein, I. M. and LeRoy, G. V.: Radioactive sodium chromate for study of survival of red blood cells. I. The effect of radioactive sodium chromate on red cells. *J. Lab. and Clin. Med.* 42: 358, 1953.

26. Johnson, P. C., Hughes, W. L., Bird, R. M. and Patrick, D. R.: The diagnosis of hemolysis by a simplified Cr-51 determination. *A.M.A. Arch. Int. Med.* 100: 415, 1957.

27. Taplin, G. U., Meredith, O. M., Jr., Kade, H., Winter, C. C.: The radioisotope renogram: An external test for individual kidney function and upper urinary tract patency. *J. Lab. and Clin. Med.* 48: 886, 1956.

28. Sevelius, G., and Johnson, P. C.: Renal blood flow determined by the use of radioiodinated serum albumin and an externally placed scintillation detector. *Clinical Research*. 6: 284, 1958.

29. Dunphy, E. B., Dowling, J. L., Jr., Scott, A.: Experience with radioactive phosphorus in tumor detection. *A.M.A. Arch. Ophth.* 57: 485, 1957.

30. Donn, A., McTigue, J. W.: The radioactive phosphorus uptake test for malignant melanoma of the eye. *A.M.A. Arch. Ophth.* 57: 668, 1957.

31. O'Rourke, J. F., Patton, H., and Bradley, R.: Fundamental limitations of radio phosphorus counting methods used for detection of intraocular neoplasms. *A.M.A. Arch. Ophth.* 57: 730, 1957.

32. Perlmutter, M. and Slater, S. L.: Which nodular goiters should be removed? *New England J. Med.* 255: 65, 1956.

33. Johnson, P. C. and Beierwaltes, W. H.: Reliability of scintiscanning nodular goiter in judging presence or absence of carcinoma. *J. Clin. Endocrinol.* 15: 865, 1955.

34. Williams, M. M. D., and Childs, D. S., Jr.: Diagnostic tests that depend on radioisotope localization. *Am. J. Roentgenol.* 75: 1040, 1956.

35. Zipf, R. E., Webber, J. M., Grove, G. R.: A comparison of routine plasma volume determination methods using radioiodinated human serum albumin and Evans blue dye (T-1824). *J. Lab. and Clin. Med.* 45: 800, 1955.

36. Beierwaltes, W. H., Johnson, P. C., and Solari, A. J.: Clinical use of radioisotopes. 456 pp. Philadelphia. Saunders, 1957.

37. Reilly, W. A., French, R. M., Lau, F. Y. K., Scott, K. G., and White, W. E.: Whole blood volume determined by radio chromium-tagged red cells. *Circulation*. 9: 571, 1954.

Carl W. Smith, M.D.  
921 N.E. 13th, Oklahoma City, Oklahoma

# SCALENE NODE BIOPSY

WALTER L. HONSKA, Jr., M.D., W. TOM JOHNSON, M.D. and  
JAMES F. HAMMARSTEN, M.D.

## Introduction

Many procedures have been used in the diagnosis of intrathoracic diseases; radiographic examination, skin tests, sputum cytology, bronchoscopy, bronchial biopsy, and bronchial washings have all proved valuable in diagnosis.

Daniels<sup>1</sup> in 1949, suggested the value of scalene lymph node biopsy. He recommended removal of the fat-filled space overlying the scalenus anticus muscle on the same side as the disease. This space is bounded below by the transverse cervical vein, medially by the internal jugular vein, and laterally by the omohyoid muscle. Several lymph nodes are always present in this fat pad. The great veins and phrenic nerve are visible on the right side, and on the left, the thoracic duct may be encountered. Daniels original cases consisted of five positive node biopsies. Two had carcinoma, two had Boeck's sarcoidosis, and one had silicosis. None had palpable nodes.

In 1952, Johnson and MacCurdy<sup>2</sup> reported a case of histoplasmosis diagnosed by biopsy and culture of a scalene node. Shefts, Terrill and Swindell<sup>3</sup> in 1953 presented a series of 205 biopsies in 187 patients. Sixty-seven (35%) of his patients had positive node biopsies leading to diagnosis in previously undiagnosed intrathoracic disease. In 1954, Harkens, Black, Clauss and Farrand<sup>4</sup> recommended extending the scalene node biopsy to exploration of the superior mediastinum, with the removal of the para-tracheal nodes. Using this cervico-mediastinal exploration under local anesthetic, he reported positive nodes in 45, or 31%, of 142 dissections. In 1955, Johnson<sup>5</sup> did scalene node biopsies on 50 young adults with pulmonary calcifications and non-palpable nodes. Five of these cases revealed pathological nodes. Two cases had chronic lymphadenitis, two sarcoidosis, and one was negative to microscopic study,

## THE AUTHORS

Walter L. Honska, Jr., M.D., graduated from the University of Oklahoma School of Medicine in 1954. He is Chief Medical Resident at the Veterans Administration Hospital in Oklahoma City.

W. Tom Johnson, M.D., graduated from the University of Oklahoma School of Medicine in 1954. His practice is limited to his specialty of General Surgery.

James F. Hammarsten, M.D., graduated from the University of Minnesota School of Medicine in 1944. His practice is limited to his specialty, Internal Medicine, and he is certified by the American Board of Internal Medicine. He is Chief of Medical Service, Veterans Administration Hospital, and Associate Professor of Medicine at the University of Oklahoma School of Medicine.

Doctor Hammarsten is a member of the Central Society for Clinical Research, the Southern Society for Clinical Research, the American Federation for Clinical Research and the American College of Physicians.

*This paper is from the Medical and Surgical Services, Veterans Administration Hospital, Oklahoma City, Oklahoma, and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.*

but revealed *Histoplasma capsulatum* when cultured. In 1957, Schiff and Warren<sup>6</sup> removed bilateral scalene nodes on 123 unselected autopsies. Sixteen per cent of the total autopsies had positive node biopsies and 43% of patients with disease processes which might involve the scalene nodes had positive nodes.

From January 1954 to April 1958, 66 male patients have had scalene fat pad biopsies performed at the Veterans Administration Hospital at Oklahoma City, Oklahoma. These biopsies were done on patients who had previously undiagnosed disease, or in order

to evaluate the operability of patients with known carcinoma of the lung. Bilateral node biopsies were performed on six patients.

The average age of the group was 54 years; the youngest was 23 years old and the eldest was 72 years of age. The symptoms were those expected in such a group. Cough was present in 86% of the patients, with production of sputum in 64%, hemoptysis in 36%, weight loss in 75% and chest pain in 47%. Ninety-four per cent smoked from one to two packages of cigarettes daily.

#### Procedure

All biopsies were done under local anesthetic as originally described by Daniels<sup>1</sup> in 1949. No complications were encountered in any of the cases. All tissues were stained with hemotoxylin and eosin stains but no cultures were made. All biopsies contained adequate lymph nodes for study.

#### Results

In the series of 66 patients, 72 biopsies (including six bilateral biopsies) were done. Table 1 reveals the final diagnosis as made by all methods, including scalene node biopsy.

Table 1

DEFINITIVE DIAGNOSIS		
	Total	Positive Nodes
CARCINOMA OF LUNG	40	16
OTHER CARCINOMA	4	3
SARCOIDOSIS	3	3
LYMPHOMA	7	6
PULMONARY FIBROSIS	4	0
TUBERCULOSIS	2	0
CHRONIC PNEUMONITIS	2	0
UNDIAGNOSED	4	0

Carcinoma of the lung was present in 40 patients, 16 of these had positive node biopsy. Carcinoma of the pancreas was found in two patients, both cases had a positive node biopsy. Carcinoma of the stomach occurred in one patient, who had a positive node biopsy. A carcinoma of unknown site was present in one patient; Boeck's sarcoidosis in three patients (all three were first diagnosed by node biopsy); lymphoma in seven patients (six had a positive node biopsy); chronic pulmonary fibrosis in four

Table 2

INCIDENCE OF POSITIVE NODES		
	Palpable	Non-Palpable
NEGATIVE	35%	70%
CARCINOMA	41%	18%
SARCOIDOSIS	5%	6%
LYMPHOMA	19%	6%
TOTAL POSITIVE	65%	30%

patients; tuberculosis in two patients; pneumonia in two patients; and four patients were undiagnosed. Autopsies have been confirmatory in 44 cases.

Positive node biopsies were found in 28 of the 66 patients. In 26 cases, the node biopsy first established the diagnosis.

Palpable scalene nodes were present in 35% of the 66 patients and non-palpable scalene nodes were found in 65% of the 66 patients. As shown in table 2, of the 23 patients with palpable nodes, 35% had normal nodes; 41% had carcinoma; 5% had Boeck's sarcoidosis; and 19% had lymphoma. A total of 65% of the palpable nodes were positive. Of the 43 patients with non-palpable nodes, 70% had normal nodes; 18% had carcinoma; 6% had Boeck's sarcoidosis; and 6% had lymphoma. A total of 30% of the non-palpable nodes were positive.

Twenty-one cases underwent thoracotomy following negative scalene pad biopsy (table 3). Twenty of these cases had carcinoma, of which 17 were unresectable. One case presented a tuberculoma at thoracotomy. Nineteen of the cases with node biopsies positive for carcinoma, or 47% of the total of 40 cases with carcinoma, were spared a thoracotomy.

Table 3

RESECTABILITY WITH NEGATIVE BIOPSY	
THORACOTOMY	21
TUBERCULOSIS WITH THORACOTOMY	1
CARCINOMA WITH THORACOTOMY	20
RESECTABLE CARCINOMA	3

#### Discussion

Although no complications developed in our series as a result of biopsy, Shefts<sup>3</sup> reported a complication incidence of 1.4%. Complications may include temporary



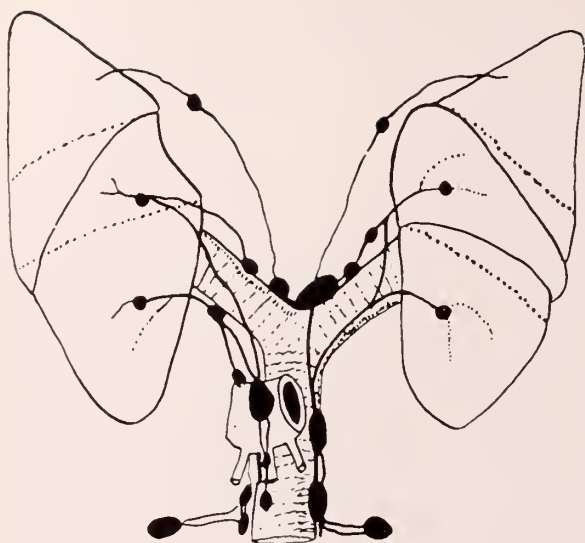


Figure 1. Lymphatic Drainage of the Lung (From Drinker).

lymph fistula, air embolism, injury to the phrenic nerve, and hemorrhage with hematoma. No deaths have been reported.

Regard must be given to the lymph drainage of the lung in using scalene node biopsy as a diagnostic procedure. Drinker (Figure 1) has shown that the lung is divided into six functional areas of lymphatic drainage. The right scalene node has lymphatic connections from the whole right lung, the left lower lobe, and a portion of the left "middle lobe" or lingula. The left scalene node connects with the left upper lobe and the lingula. Therefore, in all lesions of the lingula when the right node returns negative, the left scalene node should be biopsied. However, it must be remembered that there are undoubtedly auxiliary lymph channels that may serve as pathways of metastasis, and if the first biopsy is negative, a second biopsy on the opposite side might conceivably yield the diagnosis.

Although no cultures were made in this group of cases, Johnson and MacCurdy<sup>2</sup> have pointed out the importance of culturing scalene nodes. The value of this procedure in pulmonary histoplasmosis has been demonstrated. The extent of its usefulness in other pulmonary conditions certainly warrants consideration.

Scalene node biopsy is indicated in any undiagnosed pulmonary disease, in suspected sarcoidosis, in suspected metastatic intra-abdominal carcinoma, and in the evaluation of operability of patients with bronchial carcinoma. When scalene nodes are positive for carcinoma, surgery must be considered palliative, and the decision for such surgery based on this knowledge.

### Summary

Scalene node biopsies in 66 patients yielded helpful information in 65% when nodes were palpable and 30% when no nodes were palpable.

Scalene node biopsy is a valuable diagnostic procedure in a variety of lesions related to the pulmonary system and in the evaluation of resectability of patients with carcinoma. With this information, a more rational decision may be reached in the choice of therapeutic methods.

### REFERENCES

1. Daniels, A. C. Method of biopsy useful in diagnosing certain intrathoracic diseases. *Dis. Chest.* 16: 360, 1949.
2. Johnson, J. E., Jr., MacCurdy, J. M. Pulmonary histoplasmosis diagnosed by scalene node biopsy. *Am. Rev. Tuberc.* 66: 497, 1952.
3. Shefts, L. M., Terrill, A. A., Swindell, H. Scalene node biopsy. *Am. Rev. Tuberc.* 68: 505, 1953.
4. Harken, D. E., Black, H., Clauss, R., and Farrand, R. E. A simple cervicomedastinal exploration for tissue diagnosis of intrathoracic disease. *New England J. Med.* 251: 1041, 1954.
5. Johnson, J. E., Jr. Results of scalene node biopsy in patients with pulmonary calcifications. *Am. Rev. Tuberc.* 72: 91, 1955.
6. Schiff, P., Warren, B. A. Scalene node biopsy: Its value as a diagnostic aid in chest diseases. *Dis. Chest* 32(2): 198, 1957.
7. Drinker, C. K. Lane Medical Lectures: Lymphatic System; its part in regulating composition and volume of tissue fluid. Stanford Univ. Publ., Univ. Series, M. Sc. 4: 137, 1942.

Walter L. Honska, Jr., M.D.  
921 N.E. 13th, Oklahoma City, Oklahoma

## ABSTRACTS

### **Bronchogenic Carcinoma Complicating Pulmonary Tuberculosis: A Report of Eight Cases and a Review of 140 Cases Since 1932**

JOHN M. CAREY,\* and ALLEN E. GREER.\*\*

*Annals of Internal Medicine*, 49: 161-180, 1958

1. One hundred forty cases of bronchogenic carcinoma complicating pulmonary tuberculosis found in the English literature between 1932 and January, 1957, have been reviewed, together with eight cases treated by the authors.

2. The combined diseases occurred in males in over 95% of the cases, and the patients were of the age group and distribution of bronchogenic carcinoma alone.

3. There were no unusual pathologic features of the tuberculosis in these patients. The tuberculosis is most often bilateral, apical, or superior in location, and is most often (65%) chronic fibroid or caseo-nodular in type. Twenty-eight per cent of the cases were moderately far advanced, 47% far advanced. Seventy-five per cent of patients demonstrated acid-fast bacilli within one year of the diagnosis of the combined diseases.

4. The location of the bronchogenic carcinoma in these patients bore no relationship to the tuberculosis. The lung cancer was of the usual variety and frequency of primary lung tumors.

5. There are no specific clinical differences between pulmonary tuberculosis and bronchogenic carcinoma. Quantitative differences in symptoms and findings do occur which suggest the diagnosis of either disease alone, or of their combination.

6. Failure to achieve or maintain general improvement during present-day treatment of tuberculosis in a middle aged man should suggest the possibility of complicating bronchogenic carcinoma.

7. Radiographic signs of help in the diagnosis of bronchogenic carcinoma complicating pulmonary tuberculosis are (a) unilateral prominence of the lung hilum, (b) paratracheal lymph node enlargement, (c) atelectasis, (d) nodular densities greater than 3 cm. in diameter, or (e) bony destruction.

8. Only 21 of these patients have had definitive treatment for bronchogenic carcinoma. Only by alert diagnosis and aggressive treatment can this unfavorable combination of diseases be improved.

\*Instructor in Surgery, University of Oklahoma School of Medicine. Attending Surgical Service, VA Hospital, Oklahoma City.

\*\*Assistant Professor of Surgery, University of Oklahoma School of Medicine. Attending Surgical Service, VA Hospital, Oklahoma City.

### **Relative Eosinopenic and Hyperglycemic Potencies of Glucocorticoids in Man**

KELLY M. WEST.\*

*Metabolism*, 7: 441-456, 1958

A method of testing the eosinopenic potencies of glucocorticoids in man is described. This method takes advantage of the facts that the eosinophile count of each individual is relatively constant at the same hour from day to day and that, under certain conditions, the eosinopenic response of each individual is well correlated with the size of the dose administered.

Using such an approach, it is possible to identify mathematically, relatively small differences in potency by testing only a few subjects using the "paired control" method.

The eosinopenic potencies in man of a series of glucocorticoids were determined by this method. The potencies expressed in relation to hydrocortisone were as follows: Prednisolone - 4, Medrol (6 methylprednisolone) - 5, Fluoromedrol (6-methyl-9-fluoroprednisolone) - 8, Triamcinolone (9 fluoro - 16 - hydroxyprednisolone) - 5, 6-Methyl, 21-desoxy-9-fluoroprednisolone - 2, 9-Fluorohydrocortisone acetate - 8, 9-Fluoroprednisolone - 16 to 20. The hyperglycemic potencies of these same glucocorticoids were also treated.

The hyperglycemic potency and the eosinopenic potency of each of these seven glucocorticoids were very closely correlated, and both the eosinopenic and hyperglycemic potencies were closely correlated with the anti-inflammatory potencies, as estimated by other investigators. On the other hand, measurements of anti-inflammatory potencies and "liver-glycogen" potencies of these corticoids in the rat are only irregularly and poorly correlated with their respective eosinopenic, hyperglycemic and anti-inflammatory potencies in man.

\*Assistant Professor of Medicine, Department of Medicine, and Staff Physician, Veterans Administration Hospital.

### **Current Concepts of Treatment of Peripheral Vascular Occlusive Disease**

EDWARD R. MUNNELL,\* and AUSTIN H. BELL.\*\*

*The American Surgeon*, 24: 267-272, 1958

The armamentarium of the vascular surgeon is increasing at a rapid rate and many good methods of handling inadequate circulation are available. Therefore, the greatest emphasis should be placed on individualized treatment—or on the application of the correct surgical procedure at the right time, at the right place, and in the right patient.

\*Instructor in Surgery, University of Oklahoma School of Medicine.

\*\*Clinical professor of Surgery, University of Oklahoma School of Medicine.

## Thumbsucking Can Be Corrected

WILLIAM N. FLESHER.\*

Journal of the Oklahoma Dental Association, 45: 12-13, 1956

If a child wishes to stop the habit of thumbsucking, success is almost certain. Two case histories are reported to demonstrate the technic used by the author.

The dentist asks the child if she wishes to stop her habit. If the answer is affirmative, simple instructions are given. The parent is instructed to buy a particular bitter tasting prescription. The patient puts this on the thumb to act as a reminder, not as a punishment. The child calls the following day to report progress. The habit is discussed openly and simply. This procedure is repeated until the habit is broken.

Of 40 patients for whom accurate records are available, 30 stopped the thumbsucking habit in from one to three days after the initial appointment; nine patients required up to four weeks, and one did not want to stop the habit. Most success has been obtained with patients from seven to nine years old; a thumbsucking habit, however, should be broken before this age if possible. Before the age of four or five a child may have difficulty in comprehending the plan of treatment.

The thumbsucking habit can be broken without the use of orthodontic appliances. After the habit is stopped, the normal function of the lips can cause the teeth to assume a better alignment.

\*Assistant Professor of Dental Surgery, University of Oklahoma School of Medicine.

## Ruptured Pericostal Steel Wire Retention Sutures

A Post-Thoracotomy Complication

WALTER H. MASSION,\* MICHAEL T. LATEGOLA,\*\* and JOHN A. SCHILLING.\*\*\*

American Journal of Surgery, 96: 43-46, 1958

Pericostal stainless steel retention sutures employed in the closure of thoracotomies in dogs showed a high incidence of breakage. This led to various postoperative complications, three of which were fatal. The stress-corrosion phenomenon, i.e., the combination of tensile strain and biochemical corrosion, is considered responsible for the early rupture of the stainless steel sutures. The use of this material in thoracic surgery seems contraindicated.

\*Research Associate in Anesthesiology, University of Oklahoma School of Medicine.

\*\*Assistant Professor of Physiology, University of Oklahoma School of Medicine.

\*\*\*Professor of Surgery, University of Oklahoma School of Medicine.

## Clinical Use of Hypothermia Following Cardiac Arrest

G. RAINEY WILLIAMS,\* and FRANK C. SPENCER.\*\*

Annals of Surgery, 148: 462-468, 1958

Four patients with cardiac arrest occurring outside the operating room area are reported. Cardiac massage was instituted within four to six minutes. All patients exhibited signs of severe neurological injury and were treated promptly with hypothermia (30° - 34° C.) which was maintained up to 72 hours. Three patients recovered completely; the residual neurologic defect in the fourth is of moderate severity. The beneficial effect of hypothermia is thought to be in the reduction of cerebral swelling. Similar patients without hypothermia have rarely survived.

\*Assistant Professor of Surgery, University of Oklahoma School of Medicine.

\*\*Associate Professor of Medicine, The Johns Hopkins University School of Medicine.

## Protein Synthesis as a Basis For Chloramphenicol-Resistance In Staphylococcus Aureus

H. H. RAMSEY.\*

Nature, 182: 602-603, 1958

Both whole cells and cell-free preparations of a strain of *S. aureus*, which is resistant to chloramphenicol, are capable of synthesizing protein in the presence of concentrations of the antibiotic which completely inhibit protein synthesis in a sensitive strain of *S. aureus*.

The results suggest that decreased permeability is not the cause of resistance in this instance. Rather, some fundamental process in the protein-synthesis mechanism has been altered with a resultant decreased sensitivity to the antibiotic.

\*Associate Professor of Microbiology.

## Radical Transthoracic Fore-Quarter Amputation

EDWARD S. STAFFORD,\* and G. RAINEY WILLIAMS.\*\*

Annals of Surgery, 148: 699-704, 1958

A radical operation which permits removal of the upper portion of the chest wall en bloc with the arm and shoulder girdle has been successfully carried out on two patients. The indications for this operation are malignant disease in the region of the axillary vessel, brachial plexus, or shoulder with obvious disability of the arm. The operation permits investigation of operability before commitment as well as more effective and safe control of the blood supply.

\*Associate Professor of Surgery, The Johns Hopkins University School of Medicine.

\*\*Assistant Professor of Surgery, University of Oklahoma School of Medicine.



## Faculty News

### Six Appointments Approved

Newcomers to the University of Oklahoma Medical Center include three members of the faculty of the Department of Psychiatry, Neurology and Behavioral Sciences, two in the Department of Pediatrics and one in the Department of Microbiology.

Appointments of the following were recently approved by the Board of Regents: Floyd S. Cornelison, Jr., M.D., assistant professor of psychiatry; Max A. Glaze, M.D., clinical assistant in psychiatry; Stanley M. Kemler, M.D., instructor in psychiatry; Lucius Waites, Jr., M.D., assistant professor of pediatrics and assistant professor of neurology; Doman K. Keele, M.D., assistant professor of pediatrics; and Frances G. Felton, Ph.D., assistant professor of research microbiology.

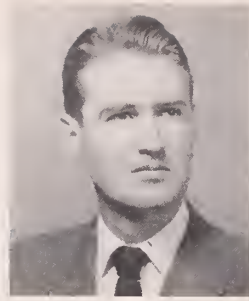
Doctor Cornelison, former instructor in psychiatry at Boston University of Medicine, received his M.D. from Cornell University Medical college and an M.S. from Boston University. Interested in the use of motion pictures for psychiatric teaching purposes, he trained as a fellow at the Medical Audio-Visual Institute of the Association of American Medical Colleges from 1951 to 1953.

Doctor Kemler, member of the staff at Central state hospital, earned his M.D. at the University of Vermont. He interned at New Rochelle hospital, New Rochelle, N.Y., and completed his psychiatric residency at Norristown State Hospital, Norristown, Pa., in 1953.

The third appointee in psychiatry, Doctor Glaze, was graduated from the University of Oklahoma School of Medicine in 1951. He served a rotating internship at University hospitals and took his psychiatric residency at Central State hospital.

Doctor Waites, who holds appointments in both the departments of pediatrics and psychiatry, has an M.D. from the University of Tennessee and interned at Jefferson Davis hospital, Houston, Texas.

After pediatric residencies at Hermann hospital, Houston, Blue Bird Children's Clinic for Neurological disease and LaRabida sanitarium in Chicago, he received neurology training at the Veterans Administration hospital in Houston, Madigan Army hos-



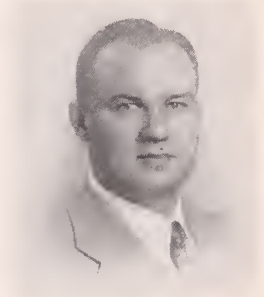
CORNELISON



KEMLER



GLAZE



WAITES



KEELE



FELTON

pital, Tacoma, Wash., National hospital, Queen Square, London, England, and at the University of Chicago clinics.

Doctor Keele, another new assistant professor of pediatrics, holds his M.D. from Southwestern Medical school of the University of Texas.

He interned at the University of Minnesota hospitals, Minneapolis; was a pediatric resident at Children's Medical Center and Parkland Memorial Hospital, Dallas and a U.S. public health service research fellow in pediatric endocrinologic and metabolic diseases at Children's hospital of Pittsburgh, from 1956 until the fall of 1958.

Doctor Felton was named assistant professor of research microbiology after receiving her Ph.D. at the Medical Center in 1958. She was graduated from Oklahoma College for Women and holds her master's degree from the Oklahoma School of Medicine.

# PRESIDENT'S LETTER



January is the month that both the Congress and the State Legislature will convene. There will not only be many new faces, but also new inspiration in the broad field of medical legislation. If 1958 is any yardstick as to what may be expected this year, it would be well to remember that over four hundred bills dealing with medical legislation were submitted to Congress within the past twelve months and Federal expenditures for individual disabilities exceeded four and a half billion dollars.

Certainly anything of this magnitude that is so vital to the health and welfare of the nation deserves the most serious consideration of every doctor and medical organization in America. County medical societies should, without exception, have well-selected legislative committees who will keep their societies informed on all current medical legislation and trends. It is equally as important to discuss these matters with your Representatives and Senators. They need your counsel if they are to serve all the people with sound judgment and foresight.

It is the opinion of many of our lawmakers that Medicine is opposed to all medical bills and unwilling to take a positive approach in controversial measures. This of course is not true; and again, referring to the 85th Congress, fifteen bills of medical nature were enacted into law last year and only one was opposed by organized medicine.

In both the June and December meetings of the American Medical Association, the tone was very definitely one of positive leadership, as borne out in the report and recommendations by the Council on Medical Service and the inspiring address by Doctor Gundersen on the clear line of progress for Organized Medicine to follow to meet the changing needs of both the public and the profession.

Your State Public Policy Committee has been very alert to the legislative trends, and during the next few months periodic bulletins will be prepared and mailed by this committee to the membership so that we all can be better informed.

A handwritten signature in dark ink, reading "E. C. Mohler, M.D." with a stylized flourish at the end.

E. C. MOHLER, M.D.  
President

In  
smooth  
muscle  
spasm...



- controls  
*stress*
- relieves  
*distress*

# Pro-Banthine<sup>®</sup> with Dartal<sup>®</sup>

**Pro-Banthine—**

*unexcelled for relief of cholinergic spasm—  
has been combined with*

**Dartal—**

*new, well-tolerated agent for stabilizing emotions—  
to provide you with*

**Pro-Banthine with Dartal—**

*for more specific control of functional gastrointestinal  
disorders, especially those aggravated by emotional  
tension.*

**Specific Clinical Applications:** Functional gastroin-  
testinal disturbances, pylorospasm, peptic ulcer, gas-  
tritis, spastic colon (irritable bowel), biliary dyskinesia.

**Dosage:** One tablet three times a day.

**Availability:** Aqua-colored tablets containing 15 mg.  
of Pro-Banthine (brand of propantheline bromide)  
and 5 mg. of Dartal (brand of thiopropazate dihydro-  
chloride). G. D. Searle & Co., Chicago 80, Illinois.  
Research in the Service of Medicine.

**SEARLE**



# Special Article

*How the most powerful lobby in Washington is bleeding every taxpayer to subsidize veterans who neither need the money nor deserve it—while the seriously disabled who do need it get short-changed.*

## VETERANS:

### *Our Biggest Privileged Class\**

JOHN E. BOOTH

When are we going to face the fact that our veterans programs are becoming one of the most flagrant wastes of public money in American history? Unless we do something about it, veterans of World War II are going to receive billions of dollars in benefits for which they have not shown real need and which they don't deserve. And if the professional veterans lobbies have their way, they are going to be paid a lot more.

I am a veteran who was awarded a "10 per cent disability" for a minor ailment. I have for years refused to collect the disability payments I am entitled to because my ability to earn a living has not been in any way impaired. The veterans organizations which are trying to lobby more and more money through Congress don't speak for me and I don't believe they speak for a majority of veterans.

Surely no thoughtful citizen would want to begrudge adequate benefits to veterans who were seriously disabled during military service. And no one would want to deny

generous compensation to the widows and children of those veterans who died during the war. It would be a national disgrace if we did.

But one of the striking paradoxes of our veterans programs is that the seriously disabled veterans who *do* need generous help the most are being short-changed—they should be getting more attention and more money. Meanwhile millions are being poured out to hundreds of thousands of veterans with so-called "disabilities" who were not handicapped by their service and who are better off economically than many of their fellow citizens who must support them.

There are, in addition, thousands of veterans getting free hospitalization for disabilities which occurred *after* their military service. And under our archaic pension system there are hundreds of thousands of men who will be drawing veterans pensions in addition to social security, despite the fact that they had no injuries in service.

Most disturbing of all is the demand which grows more shrill every year for higher and higher pensions for veterans who were not

\*Copyright 1958, by Harper & Brothers. Reprinted from Harper's Magazine by special permission.

disabled during their service. For example, one recent bill backed by a major veterans organization called for a \$105-a-month pension for all low-income veterans. The *New York Times* reported that it would cost more than one billion dollars in its first year and \$148 billion before the program ran out. That bill was finally defeated but Congressmen concerned with veterans affairs warn that the same groups will certainly be back demanding the same thing next year.

### Money Well Spent

Few people realize how much we are now spending for veterans benefits, let alone the costs which will result if the veterans lobby has its way in the future. There are now some twenty-three million veterans of past wars in America of which fifteen million served in the second world war. Since I'm one of them, it is these fifteen million which concern me primarily. Expenditures on behalf of veterans last year totaled over \$5 billion—the third most expensive item in the federal budget; this item alone cost every American family an average of \$95. Since about half the population of the country is made up of veterans and their relatives, the veterans themselves must bear much of the cost of the benefit programs.

An awesome machinery has been erected to funnel out this great sum of money. Until a recent codification there were literally hundreds of laws which dealt with veterans affairs and practically every government agency is involved with them in some way. The Veterans Administration, which has chief responsibility, carries some 174,000 employees on its payroll.

No other group of civilians comes in for anything like this special attention from the government and it seems pertinent to ask how well or how badly the veterans of the second world war fare in relation to the rest of the population.

An authoritative answer to this, as well as a good many other questions about veterans problems, was provided by the President's Commission on Veterans Benefits

headed by General Omar N. Bradley in 1956.\* Veterans, the Commission concluded, are on the whole better off than non-veterans. Their average monthly income is considerably higher; their educational level is three years above the non-veterans; they own more houses. And in general veterans hold jobs at a higher level than they did before entering the service. A good many more work at professional, managerial, and skilled jobs than before the war; fewer work as factory laborers or in service occupations.

Of course it isn't an accident that we veterans enjoy advantages of this kind. We owe a lot of them to the GI Bill of Rights and the other laws which made up the historic program of readjustment benefits, mustering-out payments, job preferences, loans, and subsidized education after the war. The premise of the program was that veterans would need help in returning to productive civilian life and it was correct. In the decade after V-J day nearly all of the fifteen million veterans received at least one kind of benefit; over half took advantage of the opportunity to obtain education and training at government expense.

By now, more than \$24 billion have been spent on postwar readjustment benefits for American veterans—and nearly \$34 billion in loans for homes, businesses, and farms have been guaranteed by the Veterans Administration. Most Americans would agree, I think, that this money was well spent—that it benefited the nation as well as fulfilled an obligation to those who had returned from the wars well in mind and body. But what about those who were discharged from the service with “disabilities”—how well have we done by them?

### The Able Disabled

The answer, as I've suggested, is that for the most part we have done much too well by many of them; tens of thousands don't need compensation and shouldn't get it. Of course any veteran who is so disabled that he is in pain or his earning capacity is really

\*Copies of the Report of this Commission, on which many of the facts and conclusions in this article are based, can be obtained for \$1.25 from the U.S. Superintendent of Documents, Government Printing Office, Washington 25, D.C.

impaired should be fully and generously provided for. But I don't think most citizens would take this to mean that every temporary hurt or minor indisposition resulting from military service should have a cash value for life.

However, this is precisely what has happened. Of the 1,785,496 veterans of the Korean War and World War II now receiving compensation for disabilities incurred in the service, *well over a million* suffer from no more than minor indispositions.

These are the so-called "10 and 20 per cent disability boys" who receive from \$19 to \$38 a month. Few of their disabilities were sustained in combat. Most result from minor injuries and illness. According to doctors who have studied many of their cases, a high proportion of them have suffered no loss of earning capacity. And according to actuarial studies, they have on the average the same prospects for a natural life span as do normal people. Their general physical condition, in brief, is on the average as good as that of other veterans and probably somewhat better than the average among the population as a whole.

If any of the low-disability veterans do have medical expenses as a result of their service ailment, the Veterans Administration pays for them in addition to the monthly disability check. So disability benefits for these men are nothing less than gifts pure and simple; as such they are undoubtedly a welcome help toward purchasing a car, a television set, and the other things that the rest of us must pay for out of what we earn.

The grotesque waste of money in needless payments points up, it seems to me, the slapdash superficiality of the way in which the entire disability program is conceived and administered. Most disinterested veterans experts I've talked with agree that at least five changes should be made:

(1) Compensation should stop as soon as possible for the majority of the 10 and 20 per cent disability boys. Some of course should stay on the rolls and some should be getting more benefits. But for most, the pointless giveaway should come to an end at

once. Unfortunately, for political reasons, it probably will be necessary to settle a lump sum on those whose accounts are closed out. My own proposal—as an interim measure until the government acts—is that veterans receiving 10 and 20 per cent disability compensation voluntarily make the money they receive available to those who are very badly disabled, or to the children of their comrades who died during the war.

(It seems worth noting that only one-quarter of all veterans receiving compensation fell ill or were injured in a combat zone—not to mention combat itself. For many of them, surely, their struggles to win, raise, and hold on to their disability payments are a lot more intense than anything they underwent during the war.)

(2) The present scale of payments should be completely reconsidered. There are some disgraceful inequities, even among those who are considered to be 80 to 100 per cent disabled. Some of these men are able to make some money despite their handicap, and more power to them. Others are lying flat on their back at home, unable to work, a burden to their family, and they'll be in that condition for the rest of their lives. For veterans in the 100 per cent disability category, the top compensation rate of \$225 a month—in special cases it can go higher—seems, to me at least, inadequate. It should be sharply increased—doubled in some cases in my opinion—and I can think of no way in which the funds saved from cutting down on low-disability payments could be put to better use.

(3) The standards by which disability payments are determined should be thoroughly revised. Supposedly the present schedule of payments was based on an estimate of the average impairment of earning capacity which a given disability would cause. But when General Bradley's commission looked into the question it found that scarcely any information had been collected on the relation between disabilities, earning capacity, and current income. The disability schedule reflected neither modern medical knowledge nor the changes in the character of present-day jobs, which are in-



creasingly "white collar." Veterans applying for aid were not even asked—and still are not asked—to indicate their economic situation or potential earnings. Also, extra benefits received under special statutes covering veterans who had lost a limb or suffered other incapacities were not sufficiently taken into account.

Certainly such factors as the loss of physical integrity, social inadaptability, and shortened life expectancy must be taken into account when awarding disability payments. And it can be argued that in certain cases the ability to overcome a handicap should not result in loss of compensation. But what is needed, above all, is a single comprehensive rating system based primarily—and realistically—on earning capacity.

(4) Adequate provision should be made for the recovery of veterans from their disability and their rehabilitation. This is one of the chief defects of the present system. In theory, disability payments ought to cease when the veteran recovers; in practice a large proportion of them are for life. Medical experts suggest that a re-examination of veterans take place each year; as things stand now they may or may not take place and often don't.

Equally serious is the lack of co-ordination between the government's separate programs for compensation and rehabilitation. Dr. Howard A. Rusk, one of the nation's leading experts on veterans rehabilitation, feels that if disability payments are not carefully supervised they may act to stifle the veteran's initiative to stand on his own feet as a self-sufficient and productive citizen; nothing, obviously, could be more discouraging for the operation of an effective rehabilitation program for the disabled.

Who is going to protest against changes of this kind being made in the compensation system? You can wager that the loudest complaints will come from those who need disability compensation the least. When I discussed changes in the disability program with veterans groups I found that most violent opposition came from the American Le-

gion, an organization which is made up for the most part of able-bodied men. The nearest agreement came from the spokesman for an organization of paralyzed veterans. He was understandably concerned that cuts made in some disability payments might extend too far and affect his group. But if that could be avoided, he was all for getting a revision of the clumsy and wasteful system under way as soon as possible.

### Hospital Beds

Just as scandalous as the deficiencies of the compensation program are the abuses of the veterans hospitals. The Veterans Administration runs some 173 hospitals which admit over half a million patients a year. Originally these hospitals were set up only to take care of men who were disabled—either mentally or physically—in the service. However an exception was soon made to admit men who weren't—if *extra beds were available*.

What happened was that most who applied were admitted and the beds were soon filled; pressure then mounted to construct more hospitals, providing more beds for those with disabilities received outside the service, and again the beds filled up. The cycle kept repeating itself. According to a recent report of the Veterans Administration only one of the "eligible" 22,000 veterans on its hospital waiting list had been disabled during military service—and he was merely waiting to get into a hospital in the area he preferred.\* Theoretically, a situation of this kind was supposed to have been avoided by a regulation requiring all who were not disabled during military service to sign an affidavit swearing that they couldn't afford to pay for treatment. It seems that this affidavit has now become something of a joke. And understandably. The law forbids the Veterans Administration to check up on it!

The wastage involved in the compensation program can be counted merely in hundreds of millions of dollars. Compared with the multi-billion dollar pension grab which

\*It should be noted that some of the pressure on these hospitals results from the inadequacy of state and local facilities to care for thousands of neuropsychiatric cases who are forced to turn to the veterans hospitals for treatment.

is now in the offing—and will reach astronomical heights if the veterans organizations have their way—it really seems quite modest.

### **The Perils of Pensions**

Few people seem aware that, as the law stands, at least half of all living veterans and their dependents—possibly more—will qualify for a veterans pension in addition to social security before they die. Pensions, of course, are not based on anything that happened during military service. In general, to be eligible for a pension ranging from \$66.15 to \$135.45 a month (for a veteran requiring care and attendance), a veteran must be (a) at least sixty-five years old; (b) 10 per cent disabled from any cause; (c) unemployable; (d) with a yearly income of less than \$1,400 if single and \$2,700 if married. (Younger veterans can qualify by showing a higher degree of disability.)

Obviously only a small proportion of the veterans of World War II and the Korean War are now disabled enough or old enough to qualify for pensions under these terms. Just how many will receive pensions toward the end of the century depends a lot on how the laws are interpreted and administered. At present anyone who is sixty-five and out of a job is considered—in practice, if not in regulation—unemployable. And if the standards of disability are construed in the future as they are now, we can expect that many veterans will have little trouble proving themselves disabled as they turn sixty-five.

So even at present, the pension laws and standards are extremely liberal. If they remain unchanged, it is estimated that some four million World War II and Korean veterans and their dependents will be on the pension rolls at the end of the century.

This program will cost billions of dollars each year but will be no more than a thin shadow of the pension system the big veterans organizations are now driving hard to put on the books in Washington. The American Legion, for example, wanted last year both to raise the maximum income a

veteran can receive and still be eligible for a pension and to establish in law the principle that a veteran would be automatically considered both unemployable and disabled when he's sixty-five. This proposal is only one of several advanced by veterans organizations which could extend pensions to virtually all veterans. It is estimated that another of the plans—for an unqualified, all-embracing service pension—would, at its peak, *cost as much as \$13 billion a year.*

Veterans would thus be set apart as a subsidized category of citizens, far more favored than any large group has ever been in the history of our country. A heavy share of the burden of paying them would fall on the rising younger generation which, from the look of things, will have quite enough troubles on its hands as it is.

### **The Revolution and the Thumped Chest**

Why should World War II and Korean War veterans have pensions at all? In all the high-flown doubletalk that one hears from veterans groups in support of pensions, the most consistent argument seems to be a combination of historical precedent and loud chest-thumping. Since Revolutionary times and throughout American history, it is argued, a grateful nation has awarded its veterans cash stipends as a reward for their sacrifices while protecting the nation; veterans of our most recent wars deserve the same.

Now it is true that after the Revolutionary War, Congress voted pensions for veterans—and for excellent reasons. The typical Revolutionary soldier, a volunteer who was miserably paid during his service, returned to a chaotic and broken economy. There was no medical assistance if he had been hurt, no help toward getting a start in civilian life, and no government program to assist civilians in their old age. He needed, in fact, a pension.

All those conditions have now changed. We were relatively well-paid during the war. Those who need medical care are getting it. Readjustment benefits such as the GI Bill gave us an important push forward when we had to make our way again in civilian



life. Veterans had the chance to continue their GI life insurance as civilians at very low rates. Most important of all, a national system of Social Security has been put into operation. True, it is not fully adequate for the needs of most of our population; but it is a pretty safe bet that by the time most veterans of World War II are sixty-five it will be vastly improved, along with the other forms of social insurance.

Veterans who are now better off as a group than the rest of the population will also be better off in their old age; they'll acquire more savings, private pension-plan payments, and other benefits than non-veterans. They have then, as a group, no special need for a general service pension or for a loosely administered pension for those "disabled" after military service which would, as the Bradley Commission pointed out, amount to the same thing.

It is probably for this reason that lobbyists for veterans organizations tend to talk a good deal less about further needs than about past sacrifices. Certainly there was inequality of sacrifice during the war but who can deny that there was as much of it inside the services as out of them? If we must assess different degrees of sacrifice, surely it is absurd to lump together the Army black-marketeer, the stateside military clerk and the combat soldier who risked his life every day. There were of course some men who, to their discredit, managed to evade the military service and comfortably sat out the war. But in general, the burdens and sacrifices of military service were shared through the selective-service system about as fairly and as democratically as humans have ever done it.

The final case against pensions depends not on weighing relative sacrifices between soldiers and civilians but on the simple principle that people who are lucky enough to be citizens of this country have a fundamental duty to protect it when it is in danger.

Franklin D. Roosevelt, a President who could not be called hostile to social legislation, summed it up in these terms:

The government has a responsibility for and toward all those who suffered

injury or contracted disease serving in its defense but no person because he wore a uniform must therefore be placed in a special class of beneficiaries over and above all other citizens. The fact of wearing a uniform does not mean that he can demand and receive from his government a benefit which no other citizen receives. It does not mean that because a person served in defense of his country, he should receive a pension from his government because of a disability incurred after his service terminated.

### **Sound and Fury and Pressure**

How would the majority of veterans feel about this principle? Are they lined up behind the drive for pensions? No one can know the answer with great precision, but there is solid evidence that they aren't. According to a Roper poll, most veterans felt entitled to some help immediately after discharge and they were strongly in favor of generous assistance to those disabled in service. But only a small proportion—less than 10 per cent—thought that all veterans should be awarded pensions. When another survey asked veterans if their military service had been a handicap to them, only 10 per cent indicated that it had; the rest said either that it had helped them or that it had made no significant difference.

Practically all the sound, the fury, and the political pressure over pensions springs not from the rank-and-file but from the leadership and lobbyists of the great veterans groups—the American Legion, the Veterans of Foreign Wars, and the Disabled Veterans of America, among others. (About the only group opposed is the very small American Veterans Committee.)

The power of these groups in Washington today is staggering. The American Legion, for instance, is rated by political experts as one of the smartest and most effective lobbies operating in the country today. Working its way through the Congressional committee rooms and corridors it seems able to change its tune at will from a throbbing emotional appeal for our noble heroes to a shrewdly timed threat to swing support to a Congressman's political opponent. It can



back up its campaign with a large supply of money, with such tactics as organized letter writing, and simply with its membership figures which total some 2,750,000.

Many Congressmen are extremely reluctant to tangle with the Legion or with the other veterans groups who work along the same lines, if less elaborately. Some have been known to propose ambitious bills for veterans benefits which they make sure will die before they reach the committee stage. Pension bills have been passed in the House and then killed in the Senate—with, it was suspected, a sigh of relief from the House. But many Congressmen wonder how long a showdown with the veterans groups over pensions can be avoided.

"The pressure for veterans pensions," according to one Congressman, "is like a cloud hanging over Washington."

Since the total membership of the pro-pension groups numbers over four million, the timidity of the legislators who deal with them is comprehensible. But many experts on veterans politics seriously doubt if the top-level leadership of the organizations and the professional lobbyists they hire really speak for their members, many of whom, they suggest, are more interested in the clubhouse camaraderie of the organizations than in the legislative policy. The hard core of leaders who everlastingly plug for more benefits have been compared to old-line union bosses who feel that they must get a raise each year for their members or lose office.

This may be so, but if you talk with top officials of the American Legion, you will find no hint of uncertainty, no self-questioning about Legion policy or the degree of support for it. The men who lead the Legion are supremely confident that they speak for the veteran; any suggestions that they might be wrong, that an alternative policy might have merit, that they are advancing a minority position, are treated as if they

verge on the unpatriotic. These men seem perfectly sincere in their demands for special status for the veteran. They were genuinely shocked, for example, when I told them that I had refused to collect my disability compensation. I was, they told me, committing a disservice to all veterans by doing so.

This kind of fervor, it must be said, did, in its day, produce some excellent and badly needed legislation for veterans, and in some instances it still does. The postwar GI Bill of Rights is an example. It is unfortunate that the veterans groups are now so unswervingly committed to the quest for more and more money. It will be an extremely tough job to stop them from getting what they want.

The large mass of veterans who are not actively seeking pensions and special privileges are the ones whose voices are seldom, if ever, heard. There is, in short, no lobby for the public interest. What is most needed, it seems to me, is a Citizens Group on Veterans Affairs which would be composed of well-known leaders who hold high prestige in the public eye. Such a committee could carry on a vigorous campaign to expose the dangerous consequences which so many proposals for veterans pose to the country as a whole.

One important function of such a group would be to re-emphasize the principle on which all discussions of the veteran must turn and with which, I believe, most Americans would agree: that military service is an indispensable and honored obligation of free citizens to their country and not, in itself, the basis of special privilege. If we veterans are to be a special group apart, let us be apart only in the sense that we are less self-seeking and more dedicated to the broad national welfare than others. We can do our country a much-needed service by taking a bold stand against those who would impose great burdens on the public in our name.

# Medical News

## Democratic Council Favors Forand

The Democratic Advisory Council, composed of party leaders mostly from outside Congress, favors a hospital-nursing home care program under social security, but there is no evidence that the top Democrats in Congress will go along with the idea. The Council recommended the step in a comprehensive manifesto, adopted at a Washington meeting to evaluate voter trends in the November election and chart a suggested course for the 86th Congress which opens January 7.

Hardly had the document been released when House Speaker Rayburn and Senate Leader Johnson let it be known that Democrats in Congress would formulate their own legislative program, and that it might not be a close parallel to the Council's report.

Prominent in Council discussions were Ex-President Truman and Adlai Stevenson, twice (1952 and 1956) defeated as Democratic presidential candidate. Presiding at the session was the Democratic National Chairman, Paul Butler. Present also were a number of governors and national committeemen. The Council was formed two years ago. Originally 10 members of Senate and House were appointed to the 20-man group, but with few exceptions they have either declined or been generally inactive.

To "insure a secure life for our people," the Council proposes that social security taxes be increased by one quarter of one per cent for employer and employee, and three-eighths of one per cent for the self-employed, with the money used to finance between 20 and 60 days of hospital care and "a limited amount" of nursing home care for the aged and other social security beneficiaries.

The council also would eliminate the age 50 limitation on disability payments, as "a disabled person is disabled whether he is 25, 40, or 50 years old." Also, it would have benefits increased 20% within the next three or four years, widow's benefits boost-

## Mills Doubts Tax Cut

Chairman Wilbur Mills (D., Ark.) of the key House Ways and Means Committee, outlining his expectations for the coming session, says he expects no tax cut, but at the same time he believes the overwhelmingly Democratic Congress will not be in a wide-open spending mood. All taxation proposals, including such social security measures as the Forand bill, are handled by this committee.

Mr. Mills' remarks were made to New York meetings of the Association of Mutual Savings Banks and the Tax Foundation, and released in Washington by the Ways and Means Committee. He said it was a "hard, cold fact" that Federal spending has been increasing in an "inexorable" way since the country was founded, from \$4 million for two years to an anticipated \$80 billion the current fiscal year. He did hold out some hope for revision of the progressive rates in the income tax brackets to encourage investment, and a broader tax base. He commented:

"... We are faced with the likelihood that people will continue demanding more and more services from the government. Therefore, as much as I would like to believe that this growth in our economy, and the resulting increase in our revenue level, will dissolve this fiscal shortage we face, I do not feel justified in relying on this alone. As a result, I have been forced to conclude that it is not enough to say that we can iron out the many problems in our tax structures as soon as tax reductions become possible, because, in all frankness, I am not at all certain when that day is coming."

ed, and the earnings ceiling for OASI taxes moved up from \$4,800 to \$7,200 within two years.

In other health areas, the council urged more appropriations for hospital construction and "a steady effort" to increase funds for medical research.



## Practical Nursing Program Needs Financial Boost

Recent changes in the amount of federal matching funds available for the operation of vocational practical nursing schools in Oklahoma will make it necessary for the state to increase the scope of its financial responsibility, according to Ruth E. Burris, State Supervisor of Practical Nurse Training.

Under the Health Amendments Act of 1956, federal money was available to cover 75 per cent of the cost of instruction and of the supplies and equipment used directly in teaching. Since July 1, 1958, only 50 per cent of these costs may be provided.

Before the implementation of the Act, there were three schools of practical nursing in the state, two of which were privately operated and one a vocational education program. There are now ten such schools in Oklahoma, nine under the direction of the State Board of Vocational Education.

Mrs. Burris further stated that the national legislation was based upon the premise that professional nurses were not available in numbers large enough to meet the minimum health needs of the United States. The training of auxiliary workers in nursing and other health occupations is designed to help provide a part of the services normally given by professional nurses.

Funds to match the federal contribution may be of either state or local origin. Up to this time, state money has been used in matching federal funds for maintaining the State Office for the Division of Practical Nurse Training. All matching funds used in local communities for operating schools of practical nursing have been provided by the hospitals in which students have their supervised experience in nursing.

The schools are administered through local boards of education, but receive no financial aid from these boards. In six of the nine schools, the classrooms are in the co-operating hospitals. The provision of facilities is not matched on a 50 per cent basis as are instructors' salaries, supplies and equipment and the cost to the hospital therefore exceeds the 50 per cent figure.

## Texas Holds Conference for County Society Officials

A one day conference for county medical society officials has been set for January 24 by the sponsoring organization, the Texas Medical Association. The event will take place in the headquarters building of the Texas Association in Austin.

John E. McDonald, M.D., Tulsa, a member of the A.M.A.'s Committee on Legislation, will appear in an afternoon symposium entitled "What's Ahead for Medicine in 1959." In addition to Doctor McDonald, other participants in the conference will be: Ernest B. Howard, M.D., Assistant Executive Vice-President of the A.M.A.; George Bugbee, New York, President of the Health Information Foundation; Russell B. Roth, M.D., Erie, Pa., Chairman of the A.M.A.'s Committee on Federal Medical Service; Donald B. Stubbs, M.D., Washington, D.C., Board Chairman of the Blue Shield Medical Care Plans and the Honorable Frank Ikard, Wichita Falls, U. S. Representative from Texas.

Among the topics to be covered are: "Building a Stronger and More Effective Medical Organization," "Observations of Government Medicine in England," "Federal Medicine and the Private Patient," "Blue Shield and American Medicine," and "Congressional Issues of Particular Interest to Physicians."

---

In order to make the program more acceptable to hospitals, particularly in view of the federal cutback, Mrs. Burris' group will submit a budget to the state legislature which will include a request for enough state money to pay one-fourth of the salaries of instructors. The additional monies are necessary to stabilize the program and put it on a continuing basis, according to Mrs. Burris.

In the United States, there are about 550 schools of practical nursing, with an enrollment of approximately 16,000 students. The nurse training program, greatly expanded by the federal participation, has added materially to the ancillary health force of the country.



## **A.A.P.S. Highschool Essay Contest Promoted Locally**

The Oklahoma State Medical Association will again sponsor the state phase of the national highschool essay contest offered by the American Association of Physicians and Surgeons. All students of public, private and parochial highschools are eligible to submit essays on either of two subjects: "The Advantages of Private Medical Care" and "The Advantages of the American Free Enterprise System."

Founded in 1943, the A.A.P.S. is an organization of libertarian physicians dedicated to (1) preserving quality medical care, (2) saving medical freedom for physicians and their patients, and (3) maintaining freedom for all Americans.

Fourteen national cash prizes will be awarded to the top essayists. A total of \$2,675 will be presented, with the first place winner receiving \$1,000, second place \$500, third place \$250, the next four places \$100 each and the last seven prizes of \$75 each.

A late start in publicizing the Oklahoma part of the 1958 contest resulted in very few entries being submitted, Floyd Moorman, M.D., Oklahoma Chairman, reported. In spite of the low number of contestants from Oklahoma, all state winners received honorable mention at the national level. In this year's contest, however, the Oklahoma City school system has already accepted the program on a voluntary basis and Doctor Moorman's group is encouraging the Woman's Auxiliary to promote participation in the contest. County medical societies and members of the A.A.P.S. throughout the state are also being relied upon to encourage local contests and submit three winning papers for judging at the state level.

Essays must be limited to 1500 words and should be typewritten on one side of 8½ x 11 paper, double spaced, if typewritten. The deadline for receipt of papers for state judging is March 15, 1959. State winners will be entered in the national contest before April 1, 1959.

Further information may be obtained by writing the A.A.P.S., Contest Committee, Suite 318, 185 North Wabash Ave., Chicago 1, Illinois, or by contacting Doctor Moorman at 1220 N. Walker, Oklahoma City.

## **K.U. Offers P.G. Course in Endocrinology and Metabolism**

The Department of Postgraduate Medical Education of the University of Kansas and the Kansas Medical Society have planned a two day course on Endocrinology and Metabolism for January 28 and 29. Scheduled to be held in Battenfield Auditorium, Kansas City, the program has been developed by the Department of Internal Medicine and Obstetrics and Gynecology, and is designed to be of interest to physicians of both fields as well as to generalists.

### **Turner on Program**

Serving as faculty guest instructor will be Henry H. Turner, M.D., Oklahoma City. Doctor Turner, President-Elect of the National Society of Nuclear Medicine, will deliver two papers and appear on two panel discussions. "Ovarian Agenesis and Other Problems of Gonadal Dysgenesis" and "Problems in the Treatment of Myxedema in Children and Adults" will be the titles of his presentations. The panel discussions will deal with ovarian agenesis, adrenal and pituitary diseases and thyroid disorders.

In addition to Doctor Turner, other guest instructors will be: Robert B. Greenblatt, M.D., Augusta, Ga.; F. Raymond Keating, Jr., M.D., Rochester, Minn.; Thomas H. McGavack, M.D., Martinsburg, W. Va.; and Max Miller, M.D., Cleveland, Ohio.

The program format will cover four aspects of the conference theme. The four major divisions of instruction are: Endocrine Problems in Reproduction; Diabetes; The Adrenal Cortex; and, Thyroid.

Minimum and maximum enrollment have been established for the course and it is recommended that physicians register in advance. A fee of \$30.00 has been set for the two day course, but those who prefer may enroll for one day for a fee of \$17.50. Checks should be made payable to the University of Kansas and mailed with advance registration to the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Kansas City 12, Kansas.

Fourteen hours of Category I credit may be earned by members of the American Academy of General Practice.

## Commercialism Threatens Hospital Tax Status

Non-profit hospitals are jeopardizing their tax-exempt status and the tax deductibility of donations by engaging in commercial enterprises for profit.

This was disclosed on December 8 in a newly revised edition of the 44-page report by the Foundation for Management Research, Chicago. The study, entitled "Doctors' Offices in Hospital-Financed Buildings," recommended that hospitals use all available capital funds to expand bed space. The Foundation found that the increase in the number of hospital-financed medical office buildings was "a dangerous tendency in hospital administration."

"Rents are usually nominal, and these physicians are thus enabled to utilize publicly endowed facilities for private gain. This violates local property exemptions and the Internal Revenue Code," the study said.

In addition to medical office buildings being financed by hospitals for the private benefit of a few senior physicians, the Foundation also found that some hospitals were expanding into restaurants, drug stores, surgical supply stores, florist shops, and other businesses "all open to the public at large, and competing with private trade."

"This tendency to engage in commercial enterprises, not for the benefit of patients but primarily to earn a profit, is slowly undermining the tax-exempt status of non-profit hospitals," the report said.

This threat to hospitals' tax status and donations is occurring at a time when their capital needs are the greatest in history. The study pointed out that for the next 20 years, general non-profit hospitals will need \$501 each year in contributions for new bed space to replace obsolete facilities and to match the nation's population growth.

"In the future, any hospital making a capital drive will have to justify publicly its use of hospital space and land for private physicians' offices and other commercial enterprises," the report stated. "The urgent need is more hospital bed space. By the same

token, every dollar of hospital funds frozen in medical office buildings and other commercial enterprises is a dollar taken away from investment needed for beds."

The Foundation report said that should hospitals lose their local or federal tax exemptions, donors stood to lose heavily because their contributions would automatically be ruled to be non-deductible by the Internal Revenue Service.

Other objections raised by the Foundation report to hospital-financed offices for physicians' private practices were:

1. It caused dissatisfaction among physicians "frozen out" and faced with "unfair competition" from physicians with subsidized private offices in non-profit hospitals.
2. Hospitals do not benefit significantly from this practice.
3. Permitting private gain through use of publicly-endowed facilities is misuse of public contributions.
4. Using up hospital space or grounds for office buildings may cripple future expansion, needed for bed space.

## Private Duty Nurses Raise Rates in Four Counties

District I of the Oklahoma State Nurses Association met on December 3 and approved certain changes in the fee schedule and employment standards of private duty nurses in Oklahoma, Canadian, Cleveland and Logan Counties. The changes, which are printed below, were effective as of January 15, 1959.

### Fees

- I. Daily rates—  
Consecutive 8 hour schedule, or fraction thereof . . . \$16.00
- II. Hourly rates: (To be used only when employment is specifically on an hourly basis, or for special procedures or services; that is—Hypodermics, dressings, etc. Total time not to exceed 3 hours): 1st hour or fraction thereof . . . \$5.00.  
Each successive hour or fraction thereof . . . \$2
- III. Multiple nursing (Nursing of two patients on an emergency basis until an additional private



duty nurse is available): Consecutive 8 hour schedule or fraction thereof to be divided equally between the patients . . . \$26.00

- IV. Relief Nursing: (General Duty Nursing in institutions, offices or Industry) (a) Not to exceed 14 days within a calendar month—Employers general duty salary rate and other employment policies apply.
- V. Cancellation:
  - (a) Nurse notified of cancellation by patient or family after arrival at place of employment receives fee for one shift.
- VI. Payment:
  - Bills are payable on presentation of Statement.
- VII. Travel:
  - When traveling with patient, travel expenses for a round trip, including cost of transportation, food and lodging are paid by patient. The regular 8 hour fee for days involved should be charged; regular time is charged for the time over eight hours—this applies especially while traveling with patient. The nurse is entitled to the daily fee until her return to the place of Departure (receipts for Expenses are presented to patient.)

#### Hours

- 1. A work day shall consist of eight consecutive hours including 30 minutes meal period in shift which are the usual practice of the institution.
- 2. Hospital Nursing Service shall provide relief for meals when necessary.
- 3. A nurse called within shift periods remains only until next shift.
- 4. A nurse reports for duty 10 minutes before the change of shift.

#### Time Off

A nurse has the privilege of arranging for relief, providing it meets with the approval of the patient.

#### No Discrimination

The same opportunities for employment shall be extended to all members, regardless of race, creed or national origin.

#### Facilities Provided by Hospitals for the Private Duty Nurses:

- 1. Provisions for Orientation to physical layout, special techniques, routines and regulations of the Hospital.
- 2. Adequate locker, lunch and dressing room.
- 3. A suitable place designated for private duty change of shift reports.
- 4. A nurse on any shift assumes responsibility for her own meals and shall have the same privileges as the nursing staff regarding purchases of meals from the institution.

## "A Word to the Wise"

*From Narcotic Enforcement Division,  
Attorney General's Office*

An examination by State agents of the narcotic prescription files on a spot check of drug stores across the State reveals that many members of the medical profession are imposing upon and placing the druggist in jeopardy by continuing telephone prescriptions for so-called potent narcotic drugs in violation of the Federal and State narcotic laws.

The liberalization of the regulations relating to narcotic drugs that permit oral prescribing of certain codeine compounds was intended to aid the profession by eliminating some of the "hardship" circumstances that would otherwise necessitate after-hour calls. This procedure, which was instituted by the Federal Bureau of Narcotics, was adopted by many states, including Oklahoma. This action is evidence of the spirit of cooperation by the State with the medical profession. The failure of some members of the profession to cooperate with the State is disappointing and the continued practice of telephone prescription for potent narcotics not authorized can only lead to disaster for the offending doctors and druggists.

## Alumni Association Proposes New Program

A two-point legislative program is being proposed by Alumni and friends of the University of Oklahoma School of Medicine in an attempt to bolster and stabilize Medical Center finances.

Goals are:

ONE—An additional \$2 million per year for operational support of the two University of Oklahoma hospitals and the Medical School.

TWO—\$400,000 to match a federal grant



awarded in March, 1957, for construction of a research building.

Drawn by the Alumni Association of the Medical School, the program was endorsed in November by the Public Policy committee of the Oklahoma State Medical Association.

Carl Bailey, M.D., Stroud, Alumni president, and Wendell Smith, M.D., Tulsa, legislative chairman, have pointed out that present appropriations do not provide for operation of the total number of beds in University and Children's Memorial hospitals (56 beds are now closed). With the present budget, it also is impossible for the Medical School to appoint the full complement of teachers or to meet salary competition for existing faculty.

The Medical Center obviously cannot plan for capital needs and further development as a ranking medical center unless recurring financial problems are solved, Alumni leaders emphasize.

In order to prevent further curtailment of the teaching and patient care program, \$1,500,000 more per annum is sought for University hospitals and a \$500,000 per year increase is requested for the Medical School budget.

Present appropriations are \$2,164,026 for the hospitals; \$746,880 for the Medical School. This compares with \$3,070,000 the state of Arkansas appropriated last year for the 270-bed University hospital at Little Rock and \$1,020,000 allocated the University of Arkansas School of Medicine.

Unless matching state monies are provided for a research faculty by February 28, 1959, the \$400,000 federal grant will be lost. It has been renewed three times pending local participation.

Representative James M. Bullard of Duncan has proposed a soft drink tax with revenue to be earmarked for the Medical Center. It is estimated the proposed new source of income would produce a minimum of \$1,500,000 a year.

## International Academy of Proctology To Hold Annual Convention

The Eleventh Annual Convention of the International Academy of Proctology will be held at The Plaza, New York, New York. April 5 through 9, 1959, it was announced recently. The International, National, and Local Program Committees are planning an unusual seminar on practical technics for office and hospital. There will be special emphasis on anal and rectal panel presentations, and on newer treatment methods, as requested by those who attended the Mexico City meeting in 1958.

Eminent speakers from all parts of the country and abroad will present interesting papers and motion picture demonstrations of their personal technics. Mexico is expected to be very well represented at this meeting.

Delegates, Trustees, and their wives, are cordially invited to cocktails and dinner on Sunday evening, April 5th, the evening before the official opening of the scientific activities of the Convention. Both members and non-members of the Academy, and their wives should plan to attend Wednesday night, April 8th, when the banquet will be held. The Banquet Committee has arranged for cocktails and hors-d'oeuvres in addition to dance music and other entertainment.

The Women's Auxiliary has planned a very unusual program for the wives of the members and their guests.

All physicians and their wives are cordially invited to attend the Annual Convention of the International Academy of Proctology, whether or not they are affiliated with the Academy. There is no fee for attendance at these teaching sessions of the Academy.

### ANNUAL MEETING

April 20, 21, 22, 1959

Mayo Hotel  
Tulsa, Oklahoma

## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**TAX RULING**—Rowland Kennedy, Executive Secretary of the Mississippi State Medical Association, has forwarded to us a copy of a letter, dated June 13, 1958, written by the Jackson, Mississippi District Director of Internal Revenue. This letter sets forth the most detailed criteria to be used in establishing the deductibility of a physician's entertainment expenses that has come to the Law Department's attention. The District Director states:

- "1. A physician may deduct on his Federal income tax return the costs of entertainment, provided he can establish to the satisfaction of the Internal Revenue Service, by appropriate evidence, that such expenses are ordinary and necessary business expenses and clearly related to the production of business income.
2. The amount of the deduction must be proven and its reasonableness determined. Once the amount is established, the deduction may be claimed when the doctor is able to show that the entertainment had a direct relationship to the conduct of his practice, and can show the business benefit reasonably to be expected from the expenditure. The general statement that he hoped or expected to get referrals or patients as a result of the entertainment is not enough. If personal reasons predominate, the expenditure may not be deducted, even though there is some possibility of a business benefit. Except in the case of industrial physicians, entertainment of individuals who are not doctors will not ordinarily qualify because the possibility of benefits to be expected are so remote as to be negligible. In instances of the entertainment of patients, the same general

rules apply as in the entertainment of other doctors, and the clear relationship of the expenditure to reasonably expected income must be shown. The same rules also apply to civic and other club dues.

"Criteria to be used in establishing the deductibility of entertainment expenses include, but are not limited to, the following:

- a. Specific purpose of entertainment.
- b. Nature of the practice of the doctor incurring the expenditure.
- c. Period of time the doctor has been in practice and the number of patients he already has.
- d. Percentage of his patients received as referrals.
- e. Names of individuals entertained and reason why additional income could be expected from each.
- f. Whether or not referrals were actually received from the doctors entertained and any indication of the effect of the entertainment on these referrals.
- g. Number of times individual doctors were entertained during the year, inasmuch as repeated entertainment indicates a personal motive.
- h. Whether or not other doctors in the same type practice in the locality have entertainment expenses."

**TAX DECISION**—The Tax Court disallowed \$185 of the \$225 a physician deducted as the cost of a medical meeting cruise to Bermuda when he could not produce any evidence that he attended any of the discussions or meetings.

*DeWitt K. Burnham v. Commissioner*, Docket 61416; March 25, 1958; T. C. Memo. 1958-46; opinion by Judge LeMire; CCH Dec. 22, 900 (M)

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*

# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER

### POSTGRADUATE PROGRAM\*

Oklahoma City, Oklahoma

#### Individual Postgraduate Courses

ADVANCE ELECTROCARDIOGRAPHY—March 2 through 6

(Prerequisite, Dr. Bayley's Basic Electrocardiography course.)

OBSTETRICAL-GYNECOLOGICAL SYMPOSIUM—March 7

Sponsored by the Oklahoma City Obstetrical and Gynecological Society. There will be two prominent guest lecturers.

OPHTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 12 and 13

Sponsored by Oklahoma City Society of Ophthalmology and Otolaryngology.

Guest Lecturers:

Michael J. Hogan, M.D., Ophthalmologist, San Francisco.

Prominent Otolaryngologist to be announced.

ORTHOPEDIC SYMPOSIUM—April 10 and 11

Treatment of Athletic Injuries.

Sponsored by the Regional Committee on Trauma of the American College of Surgeons.

FIFTH ANNUAL COMBINED SURGERY, RADIOLOGY, PATHOLOGY SYMPOSIUM—May 14 and 15

Diagnosis and Treatment of Thyroid Diseases.

Sponsored by the Oklahoma Association of Pathologists, Oklahoma Association of Radiologists and Oklahoma Chapter of American College of Surgeons. Guest participants of national reputation in surgery, radiology and pathology will participate.

OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—May 22

Two guest lecturers and presentation of original papers by members of the various house staffs will highlight this program. Participating hospitals are: Hillcrest Medical Center, Tulsa, St. John's, Tulsa; McBride, Mercy, St. Anthony, University, Veterans Administration, Wesley, Oklahoma City; Central State Hospital, Norman.

#### SERIAL POSTGRADUATE COURSE

Postgraduate Division

UNIVERSITY OF OKLAHOMA MEDICAL CENTER

Oklahoma City, Oklahoma

1958-1959

Jan. 14—Pediatrics—Diagnosis and Management of

Heart Disease in Infancy and Childhood.

Feb. 11—Urology Symposium and C. B. Taylor Lectureship. (Guest Lecturer to be Announced.)

Mar. 11—Medicine—Advances in the Diagnosis and Management of Common Allergic Disorders.

April 8—Anesthesiology—Anesthesia for the Part-Time Anesthetist.

May 13—Pediatrics—Antimicrobial Therapy and Treatment of Infectious Disease in Childhood.

June 10—Surgery—Herniae.

Designed so physicians may attend four hours of formal instruction in the above fields while spending only one-half day from their office, this series is approved for credit by the Oklahoma Academy of General Practice. Time will be 3:30 to 8:30 p.m. on the Second Wednesday of each month, September through June. Registration is \$3.00 per session or \$25.00 for the entire series.

\*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

#### ANNUAL STATE MEETING OKLAHOMA AAGP

February 2-3, 1959

Biltmore Hotel

Oklahoma City

The Annual State Meeting of the Oklahoma Chapter of the AAGP will be held February 2-3, 1959 in the Biltmore Hotel in Oklahoma City. A complete program and detailed information are available by writing P. D. Casper, M.D., Program Chairman, 4405 S.E. 28th Street, Oklahoma City.

#### NEW ORLEANS GRADUATE MEDICAL ASSOCIATION

March 2, 3, 4, 5, 1959

Roosevelt Hotel

New Orleans, Louisiana

The 22nd Annual Meeting of the New Orleans Graduate Medical Assembly will be held March 2, 3, 4, 5, 1959 at the Roosevelt Hotel in New Orleans. For information concerning the program and an itinerary of the clinical tour to Mexico which follows the New Orleans meeting, write to, Maurice E. St. Martin, M.D., Secretary, New Orleans Graduate Medical Assembly, Fourteen Thirty Tulane Avenue, New Orleans 12, Louisiana.



THE UNIVERSITY OF TEXAS  
POSTGRADUATE SCHOOL OF MEDICINE

Anesthesiology\*

February 18, 19, 20, 1959

Houston, Texas

The Fourth Annual Course in Anesthesiology to be offered by the University of Texas Postgraduate School of Medicine will be held February 18, 19, 20, 1959 in Houston. The course is designed to review theory and practice of commonly used anesthetic techniques and will include discussions of some of the newer drugs.

\*Address all inquiries to: The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Houston 25, Texas.

SEVENTH POSTGRADUATE CONFERENCE  
IN MEDICINE AND SURGERY

March 2, 3, 4, 1959

Temple, Texas

The Temple Division of the University of Texas Postgraduate School of Medicine announces its Seventh Postgraduate Conference stressing Current Topics in Medicine and Surgery. The program, sponsored by Scott, Sherwood and Brindley Foundation, will be presented in Temple on March 2, 3, 4, 1959.

F. J. L. Blasingame, M.D., Executive Vice-President of the American Medical Association, will be the guest speaker.

Registration forms are available from the office of the Assistant Dean, University of Texas Postgraduate School of Medicine, Temple Division, Temple, Texas.

INTERNATIONAL MEDICAL ASSEMBLY  
of  
SOUTHWEST TEXAS

January 26, 27, 28, 1959

Gunter Hotel

San Antonio, Texas

The International Medical Assembly of Southwest Texas will hold its annual meeting January 26, 27, 28, 1959 in San Antonio, Texas at the Gunter Hotel. Further information may be obtained by writing to Mr. S. E. Cockrell, Jr., Executive Secretary, 202 West French Place, San Antonio, Texas.

7th ANNUAL CANCER SEMINAR

January 22-24, 1959

Phoenix, Arizona

The 7th Annual Cancer Seminar of the Arizona Division of the American Cancer Society, will be held January 22-24, 1959 at the Paradise Inn, Phoenix, Arizona. Detailed information is available by writing to Seminar Committee Chairman, Edward H. Bregman, M.D., 543 East McDowell Road, Phoenix, Arizona.

INTERNATIONAL ACADEMY OF PROCTOLOGY

APRIL 5-9, 1959

The Plaza

New York, New York

The Plaza Hotel, New York, will be the site of the Eleventh Annual Convention of the International Academy of Proctology, to be held April 5-9. Special emphasis will be placed on anal and rectal panel presentations and on newer treatment methods.

Non-members as well as members are invited to attend the meeting and the annual dinner-dance. There is no registration fee.

Plan to Attend The  
53rd Annual Meeting

of the

Oklahoma State  
Medical Association

April 20, 21, 22, 1959

Mayo Hotel

Tulsa, Oklahoma

# Organization News

## Health and Accident Program Is Changed

As announced in last month's *Journal*, the Association's health and accident insurance program is undergoing a changeover period between December 15 and April 15, 1959, the dates of the charter enrollment period for a completely new program which replaces the old group plan.

Under study by the OSMA Insurance Committee for some time, the old group plan, which offered maximum benefits of only \$200 per month, was found to be inadequate for today's needs. The Committee surveyed similar association programs over the country and drafted specifications for an improved plan. Insurance companies were then offered an opportunity to bid on the contract and the North American Accident Insurance Company subsequently received the award.

Since North American was also writing the old group policy, physicians holding the \$200 benefit plan will simply make the conversion to the new program through the same company. Individual certificates under the former program will either be designated OM-A or 6A-250, depending upon the year in which written. The extremely liberal benefits of the new program made it necessary for the insurance company to discontinue the contract previously endorsed by the O.S.M.A.

The insurance company has also announced that supplemental policies written for Oklahoma physicians would also be discontinued because of the increased benefits of the new program. These supplemental policies were offered by the company to augment the Association-approved program although they were not O.S.M.A. sponsored.

Cancellation of the old program and the insurance company's supplemental policy will not result in deprivation of coverage

to any physicians. All members of the Association will be able to transfer to the new program and receive coverage providing at least \$200 in monthly benefits, without evidence of insurability.

### Many Options

Under the new program, six different combinations of waiting periods and years of coverage will be offered. A physician will have his choice of three waiting periods before receiving his benefits, and an option will also be offered of either three or five years sickness benefits. Lifetime benefits will be payable in all cases of accident disability.

Within each of the six combinations mentioned above, the majority of physicians will be able to select their monthly indemnity. Monthly accident and sickness indemnities of \$200, \$300, \$400, \$500, and \$600 are provided in the master contract.

All members of the Association under age 70 will be eligible to participate. Members in the age groups 60-65 and 65-70 will be able to apply for \$300 per month and \$200 per month, respectively. Members under age 60 will be eligible for their choice of \$200 to \$600 per month coverage.

All members up to the age limit of 70 will be able to obtain at least \$200 per month coverage without evidence of insurability provided they enroll within the Charter Enrollment Period. The company may require evidence of insurability in the case of impaired risks who apply for monthly benefits above the \$200 limit.

### Further Information

Members of the Oklahoma State Medical Association are receiving more detailed information through the mail. It is also planned for representatives of the North American Accident Insurance Company to personally call on County Medical Societies and individual physicians.

## **Eight Accept Annual Meeting Invitations**

Eight nationally known medical personalities have accepted invitations to appear on the scientific program of the 53rd Annual Meeting of the Oklahoma State Medical Association in Tulsa, April 20-22, 1959.

Byron W. Steele, Jr., M.D., Chairman of the Scientific Works Committee, announced in Tulsa last month the following would be guest speakers for the three-day convention: E. Perry McCullagh, M.D., Chairman of the Department of Endocrinology, Cleveland Clinic, Cleveland, Ohio; Charles B. Huggins, M.D., Chairman of the Department of Urology, University of Chicago School of Medicine, Chicago, Illinois; Nathan J. Smith, M.D., Chairman of the Department of Pediatrics, University of Wisconsin School of Medicine, Madison, Wisconsin; Ormand C. Julian, M.D., Professor of Surgery, University of Illinois School of Medicine, Chicago, Illinois; Phillip Robb McDonald, M.D., Associate Professor of Ophthalmology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania; Isadore Dyer, M.D., Chairman of the Department of Obstetrics & Gynecology, Tulane University Medical School, New Orleans, Louisiana; Michael L. Mason, M.D., Professor of Plastic and Reconstructive Surgery, Northwestern University School of Medicine, Chicago, Illinois, and Gunnar Gundersen, M.D., President, American Medical Association, LaCrosse, Wisconsin.

Doctor Steele said at least four other nationally known physicians would be announced later to complete the panel of visiting distinguished guest speakers.

Plans for the 1959 Annual Meeting are well advanced. Edward L. Moore, M.D., of Tulsa, General Chairman, said all commercial exhibit space has been sold. He urged Oklahoma physicians and organizations interested in presenting a scientific exhibit to write at once for application blanks. Doctors and others interested in presenting a scientific exhibit should write to: Mr. Jack Spears, Convention Manager, Oklahoma State Medical Association, B9 Medical Arts Building, Tulsa, Oklahoma.

All events of the 1959 meeting will again be in The Mayo. In addition to presentations by visiting guest speakers, the program will include papers by Oklahoma physicians, roundtable luncheons, medical motion pictures, scientific and commercial exhibits, social events, and a program of activities for the Auxiliary to the Oklahoma State Medical Association.

The House of Delegates will meet on Sunday, April 19, 1959, at The Mayo.

"We feel quite fortunate in securing such a distinguished panel of guest speakers," Doctor Steele said, "and this should encourage a record attendance of Oklahoma physicians to the 1959 Annual Meeting."

## **Delegates Report on A.M.A. Interim Meeting**

*Oklahoma's Delegates to the American Medical Association submitted the following reports, highlighting the recent A.M.A. Clinical Meeting held in Minneapolis.*

Doctor Hoover

Winter comes to Minnesota earlier and with more fervor than in Oklahoma. December 1, 2, 3, 4 and 5, 1958 found wintry weather in full gusto at Minneapolis for the AMA Clinical Meeting.

The interesting and important actions of the House of Delegates were few but very definite and positive. One of the actions of note was the approval of the following recommendation of the Council on Medical Service: "That the American Medical Association, the constituent and component medical society, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the age group over 65 with modest resources of low family income; that physicians agree to accept a level of compensation for medical services rendered to this group which will permit the development of such insurance and prepayment plans at a reduced premium rate."

Another important action was the House of Delegates approval of administrative changes in the structure of the American



Medical Association. These changes were recommended by the Heller report and are being instituted by F. J. L. Blasingame, M.D., Executive Vice-President, with the aid of the Board of Trustees. The Chicago staff is to be divided into the following seven divisions: Business Division, Law Division, Communications Division, Field Division, Division of Scientific Publications, Division of Socio-Economic Activities and Division of Scientific Activities. The Washington Office has been reorganized and will have more overall direction from the Chicago office.

A meeting on Federal Medical Services was held on Monday, December 1, 1958. Walter E. Brown, M.D., Chairman of the Medicare Committee of the Oklahoma State Medical Association, appeared on an afternoon panel with other distinguished personalities who are authorities on this program. Your Association was well represented at this meeting by its Delegates, Alternate Delegates and E. C. Mohler, M.D., your President. A more detailed report of this meeting will be given by your Delegates at the next House of Delegates meeting of the Oklahoma State Medical Association.—*Wilkie D. Hoover, M.D.*

#### Doctor Phelps

The interim session of the A.M.A. was held in Minneapolis, December 2 to 5, 1958. For the most part the weather was clear but cold. The attendance was disappointing as only 2,870 physicians registered. Many of these were members of the House of Delegates and Alternates.

At the opening session Governor Orville Freeman of Minnesota addressed the House of Delegates. His address was another plea for left wing government with increased federal spending and usurpation of state functions.

The Council of Medical Service, with the approval of the Board of Trustees, recommended that, "The constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the group over 65 with modest resources or low family income;

that physicians agree to accept a level of compensation for medical services rendered to this group which will permit the development of insurance and prepayment plans at a reduced premium rate."

The long-awaited report of the Commission on Medical Care Plans, appointed at the 1954 Clinical Meeting in Miami, was discussed for two hours at a reference committee hearing, but the House decided to defer action until the June, 1959, meeting. In so doing, the Delegates adopted this statement:

"We respectfully suggest to the constituent associations reviewing the report in the interim, that their attitude regarding the report will be clarified if they arrive at some decisions in regard to the following basic points:

"1. Free Choice of Physician—Acknowledging the importance of free choice of physician, is this concept to be considered a fundamental principle, incontrovertible, unalterable, and essential to good medical care with qualification?

"2. Closed Panel Systems—What is or will be your attitude regarding physician participation in those systems of medical care which restrict free choice of physician?

"These suggestions acknowledge that the policy of the A.M.A. to encourage and support the highest quality of medical care for all patients remains unchanged. They question, however, whether attitudes toward the free choice of physician and the closed panel system may be undergoing evolutionary change."

The House recommended that the Board of Trustees invite the constituent associations to forward their replies to these questions to the Executive Vice-President sixty days in advance of the June, 1959, meeting.

The Delegates requested the Judicial Council to review past pronouncements of the House on Osteopathy and the status of the laws of the various states in this regard. The Council was asked to present its report and recommendations at the June, 1959, meeting.

The House approved a statement by the Council on Medical Education and Hospit-

als supporting the development of additional facilities for basic medical education, and it urged the entire profession to give that policy strong support in order to correct misinterpretations of the Association's viewpoint regarding the supply of physicians.

A Board of Trustees report of the administrative structure of the Association was approved by the House.

The House received and commended the report of the Committee to study A.M.A. Objective and Basic Programs, which it said may be a significant milestone in the Association's history. In approving one of the committee's recommendations, the House referred to the Council on Constitution and Bylaws the following suggested amendment of Article Two of the Constitution: "The objectives of the Association are to promote the science and art of medicine and the betterment of public health and an understanding of the socio-economic condition which will facilitate the attainment of these objectives."

Once again considering fund raising problems which have arisen since development of the concept of united community effort, the House passed a resolution which pointed out that the A.M.A. neither approved nor disapproved the United Fund drives.

The House of Delegates expressed regret at the substitution of federal facilities for private care in medicare and urged the Association to encourage the reestablishment of services under the free choice principle to accomplish the original intent of the act.

The House also recommended that the Social Security Act be amended by Congress to permit states to combine the present four Public Assistance medical programs into a single medical program.

The House also called to the attention of all individuals or institutions responsible for intern and resident training that medical services provided to patients in hospitals are the responsibility of duly licensed physicians.

The House also agreed with the Committee on Medical practices that relative value studies should be conducted by each con-

stituent medical association but not on a national regional basis by the A.M.A.

The House also urged each constituent society to establish a committee on rehabilitation to carry out activities recommended by the Board of Trustees and called for continued activity at all levels to stimulate the development of effective poliomyelitis inoculation programs.

Lonnie A. Coffin, M.D., of Farmington, Iowa was named General Practitioner of the year.

Various states contributed a total of \$250,000 to the American Medical Education Foundation and the A.M.A. contributed \$100,000 to the Foundation.

W. Linwood Ball, M.D., of Richmond, Va., A.M.A. Vice-President, was appointed to the Board of Trustees to fill the vacancy caused by the recent death of Warren Furey, M.D. Doctor Ball will serve on the Board until next June and said he will not be a candidate to succeed himself.

Your delegation was ably assisted by the alternate delegates, Doctors E. H. Shuller, R. Q. Goodwin and Joe Duer as well as President Mohler and the invaluable services of Dick Graham and Jack Spears. It should also be mentioned that Doctor Showman of Tulsa is a member of the House of Delegates as a representative of the Section of Dermatology. He is also of great assistance to the Oklahoma delegation.

We were all especially proud of the fact that William Kirkham, a medical student at the University of Oklahoma, was one of the representatives of the Student American Medical Association. Mr. Kirkham is National Treasurer of the organization.

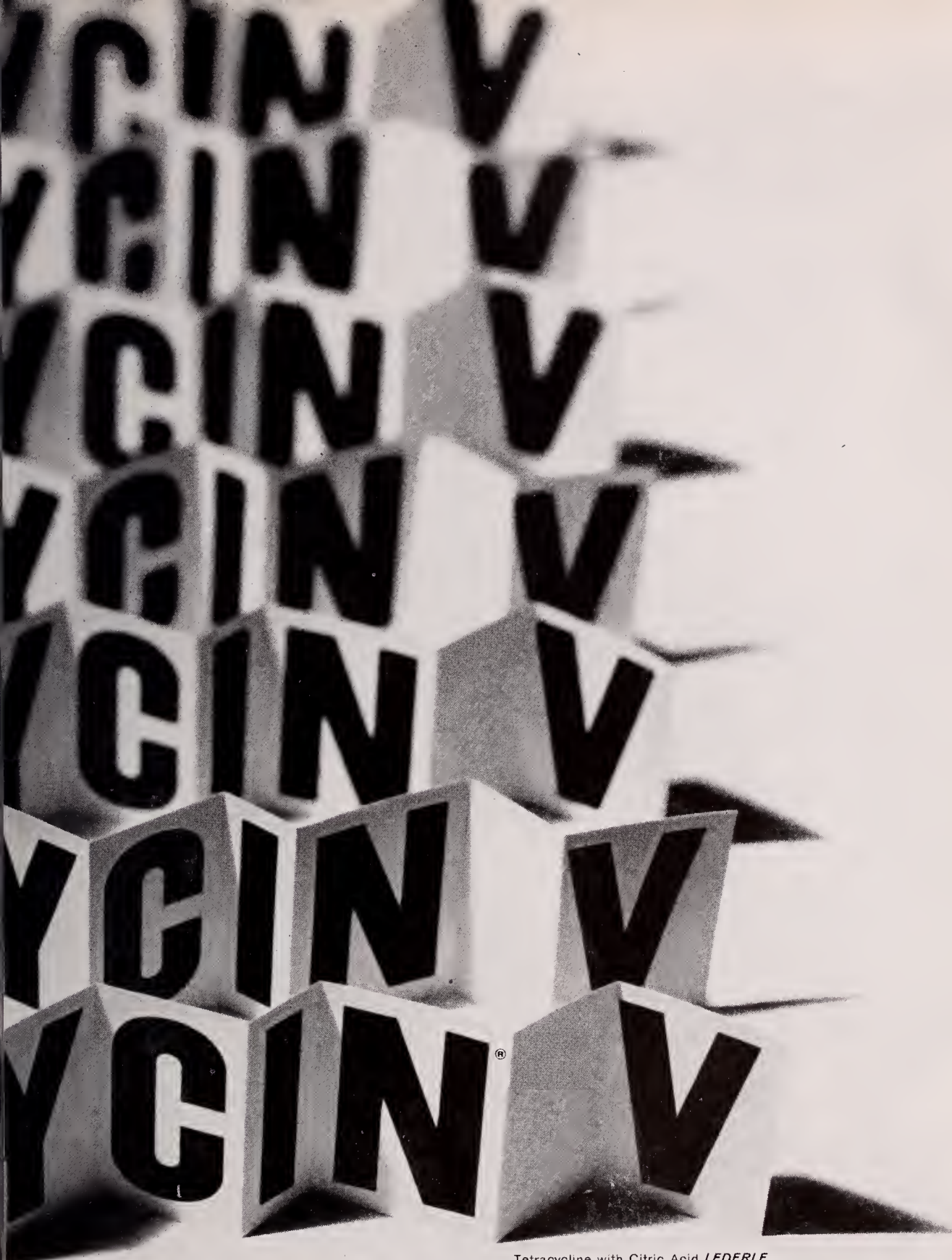
In a splendid brief address to the House of Delegates Bill expressed the gratitude of the S.A.M.A. to the House of Delegates and outlined the objectives of the Student A.M.A.

The Delegates of the Oklahoma State Medical Association solicit the views of all members of the Association between now and the June meeting of the House of Delegates so that we may more adequately represent the thinking of the doctors in Oklahoma at the A.M.A.—*Malcom E. Phelps, M.D.*



ACHROM  
ACHROM  
ACHROM  
ACHROM  
ACHROM  
ACHROM  
ACHROM





Tetracycline with Citric Acid **LEDERLE**

**DERLE LABORATORIES**, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York



## White House Conference Set for Aging Problem

On September 2, 1958, the 85th Congress passed a bill which instructed the President to call a White House Conference on Aging in January of 1961. Designated H.R. 9822, the general purpose is to establish a national conference where recommendations can be made toward the improvement of living conditions of older people.

Selected passages from the Act are reproduced below:

- "A White House Conference on Aging shall be called by the President of the United States in January, 1961, in order to develop recommendation for further research and action in the field of aging.

- "The Conference shall be planned and conducted under the direction of the Secretary of Health, Education, and Welfare who shall have the cooperation and assistance of such other Federal departments and agencies as may be appropriate.

- "Grants may be made to States for planning and conducting State Conferences prior to the National Conference. These grants, ranging from \$5,000 to \$15,000 will be determined by the Secretary of Health, Education and Welfare.

- "The Secretary of HEW is authorized to provide assistance to the States by preparing and distributing background information on aging, and to help in other ways.

- "The Secretary is authorized to establish an Advisory Committee to the White House Conference on Aging composed of professional and public members and to appoint any technical advisory committees that may be required.

- "A final report on the Conference will be submitted to the President, and made public, within 90 days of the close of the Conference."

In its declaration of policy, the Act says:

- "While the primary responsibility for meeting the challenge and problems of aging is that of the States and communities, all levels of government are involved and must necessarily share responsibility; and it is therefore the policy of the Congress that the Federal Government shall work jointly with the States and their citizens, to develop recommendations and plans for action which shall serve the purpose of:

- "Assuring middle-aged and older persons equal opportunity with others to engage in gainful employment which they are capable of performing, thereby gaining for our economy the benefits of their skills, experience, and productive capacities.

- "Enabling retired persons to enjoy incomes sufficient for health and for participation in family and community life as self-respecting citizens.

- "Providing housing suited to the needs of older person and at prices they can afford to pay.

- "Assisting middle-aged and older persons to make the preparation, develop skills and interests, and find

social contacts which will make the gift of added years of life a period of reward and satisfaction and avoid unnecessary social costs of premature deterioration and disability.

- "Stepping up research designed to relieve old age of its burdens of sickness, mental breakdown and social ostracism.

"It is further declared to be the policy of Congress that in all programs developed there would be emphasis upon the right and obligation of older persons to free choice and self-help in planning their own futures."

The Act lists reasons why legislation is needed. Reproduced below are a selected number of them:

"The number of persons forty-five years of age and older in our population has increased from approximately thirteen and one-half million in 1900 to forty-nine and one-half million in 1957, and the number sixty-five years of age and over from approximately three million in 1900 to almost fifteen million at the present time, and is expected to reach twenty-one million by 1975.

"Outmoded practices in the employment and compulsory premature retirement of middle-aged and older persons are depriving the economy of their much needed experience, skill, and energy and simultaneously, depriving many middle-aged and older persons of opportunity for gainful employment and an adequate standard of living.

"Many older persons do not have adequate financial resources to maintain themselves and their families as independent and self-respecting members of their communities, to obtain the medical and rehabilitation services required to permit them to function as healthy, useful members of society, and to permit them to enjoy the normal, human, social contacts.

"Our failure to provide adequate housing for elderly persons at costs which can be met by them is perpetuating slum conditions in many of our cities and smaller communities and is forcing many older persons to live under conditions in which they cannot maintain decency and health or continue to participate in the organized life of the community.

"The lack of suitable facilities and opportunities in which middle-aged persons can learn how to prepare for the later years of life, learn new vocational skills, and develop and pursue avocational and recreational interests is driving many of our older persons into retirement shock, premature physical and mental deterioration, and loneliness and isolation and is filling up our mental institutions and general hospitals and causing an unnecessary drain on our health manpower.

"In order to prevent the additional years of life, given to us by our scientific development and abundant economy, from becoming a prolonged period of dying, we must step up research on the physical, psychological, and sociological factors in aging and in diseases common among middle-aged and older persons.

"We may expect average length of life and the number of older people to increase still further. We



must proceed with all possible speed to correct these conditions and to create a social, economic, and health climate which will permit our middle-aged and older people to continue to lead proud and independent lives which will restore and rehabilitate many of them to useful and dignified positions among their neighbors; which will enhance the vigor and vitality of the communities and of our total economy; and which will prevent further aggravation of their problems with resulting increased social, financial, and medical burdens."

#### **AMA Approves**

The American Medical Association endorsed the passage of H.R. 9822 with the following statement:

"The members of the medical profession will take part in these conferences, both on the state and national levels, to the fullest extent possible."

In a recent letter to the OSMA, F. J. L. Blasingame, M.D., Executive Vice-President of the AMA, encouraged the state association to see that the proper authorities in the state arrange to have such a conference and that the association effect close liaison with the responsible party through its Committee on Health Care of the Aged.

#### **Aged Committee Working**

Under the chairmanship of Hayden Dona-

hue, M.D., the Association's committee is not only studying possible participation in the Federally sponsored program, but has also launched an independent survey of the health and welfare needs of Oklahoma's elder citizens. Serving with Doctor Donahue are: C. E. Bates, M.D., John W. DeVore, M.D., Leonard P. Eliel, M.D., Shelby Gamble, M.D., Herbert Kent, M.D., Earl D. McBride, M.D., Samuel C. Shepard, M.D., Mr. Paul Snelson (Consultant); J. R. Stacy, M.D., and Henry H. Turner, M.D.

In an effort to pursue the complex problem systematically, the committee has divided itself into subcommittees covering major facets of the program. The Subcommittees are: Insurance and Retirement, Rehabilitation and Restoration Services, Public Health and Home Care, Nursing Homes, and Research.

Copies of the total text of the White House Conference on Aging Act can be obtained by writing to the Special Staff on Aging, Department of Health, Education, and Welfare, Washington 25, D.C.

## **What's Your Hobby, Doctor?**

The DOCTOR'S HOBBY SHOW has become one of the outstanding attractions at the OSMA ANNUAL MEETING. A project of the Woman's Auxiliary, the show offers physicians an excellent opportunity to display the products of their leisure time. If you have a hobby, don't keep it a secret . . . Show your colleagues what you can do . . . **APPLY NOW!**

### **Doctor's Hobby Show**

**O.S.M.A. Annual Meeting**

**Mayo Hotel**

**Tulsa**

**APRIL 20, 21, 22, 1959**

## **Application For Hobby Show Space**

**53rd ANNUAL MEETING**

**OKLAHOMA STATE MEDICAL ASSOCIATION**

**DESCRIBE EXHIBIT**, including information as to size, shape and value (insurance is provided):

**IMPORTANT:** Deliver Exhibit to Mayo Hotel by noon, April 19. Your Exhibit will be personally attended and insured at all times. It must be picked up by noon, April 22, when management responsibility ends.

#### **MAIL THIS FORM TO:**

**Mrs. Wm. R. R. Loney, Chairman  
Doctor's Hobby Show  
2440 East 26th Place  
Tulsa 14, Oklahoma**



## AMA Field Representative Visits Executive Offices

Mr. Glenn W. Gillette, one of the new Field Secretaries of the American Medical Association, visited the Executive Office of the Oklahoma State Medical Association recently where he met with the Public Policy Committee.

### Purpose of Field Survey DIVISION OF FIELD SERVICE

- I. *Purpose:*  
The Division of Field Service shall serve as an operation and liaison arm of the AMA with the state and local medical societies in specified activities. It shall serve in conjunction with, in support of, and as a service to all divisions and departments of AMA in the field as may be agreed upon by the respective directors or as may be directed by the management.
- II. *Objectives:*
  - A. To further develop the spirit of teamwork between AMA and the state societies.
  - B. To help create among AMA members a recognition of their identity of interest with the AMA.
  - C. To assist in locating, cultivating, and developing a better understanding and closer working relationship with approximate lay organizations.
- III. *Functions:*
  - A. To gain and maintain the complete confidence, understanding, and cooperation of the executive secretary, principal officers, and governing bodies of each state society.
  - B. To detect adverse criticism of the AMA, and transmit the information to the management.
  - C. To locate in organized medicine any points of friction, schisms, conflicts, splinter-groups, and attempt to catalyze the correction and healing of such situations.
  - D. To interpret and promote the services of all units of AMA to constituent societies.
  - E. To develop a constructive, cooperative working relationship with the members of Congress and their

## 1959 Directory, Roster Scheduled for February

The 1959 version of the Directory of the Oklahoma State Medical Association is scheduled to be printed during the month of February. Medical laws of Oklahoma, facts about voluntary state and federal health agencies, and other miscellaneous information of benefit to practicing physicians will be featured in addition to the complete roster of the O.S.M.A. membership.

Physicians of the state will be listed in two separate sections; one an alphabetical arrangement of the complete membership and the other a breakdown by county. In addition to the usual information provided on each member such as birthdate, school of graduation and address, the 1959 Directory will classify members as either *generalists*, *part-time specialists* or *full-time specialists*.

The publication of the Directory will be financed by advertising sold to institutions, clinics and members of the profession. Information concerning advertising rates may be obtained from the Executive Office of the O.S.M.A. Advertising sales will end on February 1.

## House and Senate Committees Appointed

Committees of the House and Senate of the Oklahoma State Legislature of particular interest to the medical profession have been announced.

L. H. Ritzhaupt, M.D., Senator from Logan County will head the Senate Committee on Public Health.

In the House of Representatives, Representative J. E. Bouse of LaVerne is Chairman and Representative Maurice Willis of Altus is Vice-Chairman of the Professional and Occupational Regulations Committee. Representative Robert L. Goodfellow of Anadarko is Chairman and Representative Bucky Buckler of Konawa is Vice-Chairman of the Public Health Committee.

- 
- supporters and friends.
  - F. To facilitate the utilization by lay organizations of AMA resources.
  - G. To promote such other special activities as directed by the management.

## D. D. Paulus, M.D., Honored



D. D. Paulus, M.D., right above, is shown receiving a certificate of Life Membership in the Oklahoma State Medical Association from John F. Burton, M.D., at the regular meeting of the Oklahoma County Medical Society at the Petroleum Club, November 25, 1958.

## Oklahoma Assistant Heads National Group

Mrs. Lucille Swearingen, Bartlesville, was installed as President of the American Association of Medical Assistants at ceremonies recently held in Chicago. For Mrs. Swearingen, an employee of Doctors Lockard and Wallingford, the honor represents the culmination of ten years' active interest and leadership in the Oklahoma Medical Assistants Society.

A charter member of the Washington-Nowata County Medical Assistants since its inception in 1948, she has served her state organization as President, Vice-President, Corresponding Secretary, Parliamentarian and member of the Executive Board. She has also served as Oklahoma's representative on the national board of directors.



MRS. LUCILLE SWEARINGEN

## AAGP Meeting Set Next Month

Oklahoma City's Biltmore Hotel will be the site of the Oklahoma AAGP Annual Meeting, February 2-3. Program Chairman P. D. Casper, M.D., recently announced the completion of an outstanding scientific and social program which is printed below. Further information may be obtained by writing Doctor Casper at 4405 S.E. 28th, Oklahoma City.

### Eleventh Annual Meeting Program

Monday, February 2, 1959

8:00 a.m.—Registration  
 9:30-10:00 a.m.—Walter M. Watts, M.D., Asheville, N.C.—“Taking the Headache out of the Backache”  
 10:00-10:30 a.m.—Visit Exhibitors  
 10:30-11:00 a.m.—Robert B. Greenblatt, M.D., Augusta, Georgia—“Some Newer Concepts of the Menopause and its Management”  
 11:00-11:15 a.m.—Visit Exhibitors  
 11:15-11:45 a.m.—Oscar Sugar, M.D., Chicago, Illinois—“Headache of Cervical Origin”  
 11:45-12:00 a.m.—Visit Exhibitors  
 12:00- 2:00 p.m.—Roundtable Luncheon  
 2:00- 2:30 p.m.—Stanley E. Roberts, M.D., Fullerton, California—“How to Look for the Diseased Thyroid, and what to do with it”  
 2:30- 3:00 p.m.—Holland T. Jackson, M.D., President, A.A.G.P., Ft. Worth, Texas—“Management of the Coronary Thrombosis Patient”  
 3:00- 3:30 p.m.—Visit Exhibitors  
 3:30- 4:00 p.m.—G. O'Neil Proud, M.D., Kansas City, Kansas—“Signs and Symptoms of Ear, Nose, and Throat Malignancy”  
 4:00- 4:15 p.m.—Visit Exhibitors  
 4:15- 4:45 p.m.—Robert B. Greenblatt, M.D.—“The Differential Diagnosis of Hypoovarianism and Turner's Syndrome”  
 6:30- 7:30 p.m.—Social Hour  
 7:30 p.m.—Banquet  
 Speaker will be Holland T. Jackson, M.D., President of the American Academy of General Practice, Fort Worth, Texas. Entertainment will be by the Bagwell Gypsies

Tuesday, February 3, 1959

7:00- 8:00 a.m.—Breakfast  
 8:00- 9:45 a.m.—Annual Business Meeting  
 9:45-10:15 a.m.—Harris D. Riley, M.D., Oklahoma City, Oklahoma—“Recent Advances in Antimicrobial Therapy”  
 10:15-10:45 a.m.—Visit Exhibitors  
 10:45-11:15 a.m.—Stanley Roberts, M.D.—“The Closed Traumatized Abdomen”  
 11:15-11:30 a.m.—Visit Exhibitors  
 11:30-12:00 a.m.—Walter M. Watts, M.D.—“The Painful Shoulder”  
 12:00- 2:00 p.m.—Roundtable Luncheon

## Deaths

GEORGE RANDOLPH BOOTH, SR., M.D.  
 1884-1958

George Randolph Booth, Sr., M.D., Wilburton physician, died on December 14, 1958.

Born in Hutto, Texas, on March 1, 1884, Doctor Booth attended the University of Texas and graduated from the Memphis Hospital Medical College in Tennessee in 1904. He began his practice at Star, Indian Territory and moved to Hughes one year later. In 1908, Doctor Booth moved to LeFlore and maintained his practice there until 1942 when he moved to Wilburton.

In 1956, the Oklahoma State Medical Association honored Doctor Booth with the presentation of a 50-Year-Pin for his years of practice in Oklahoma.

JAMES THADDEUS MORELAND, M.D.  
 1871-1958

James Thaddeus Moreland, M.D., 87 year-old retired Idabel physician, died November 22, 1958. Born in Eljay, Georgia, he later graduated from the Chattanooga Medical School in Tennessee.

Doctor Moreland's early practice was in Arkansas. Coming to Oklahoma before statehood, he settled in Idabel.

Before his retirement six years ago, Doctor Moreland was honored by the Oklahoma State Medical Association when he was presented with a 50-Year-Pin for his years of service.

2:00 - 2:30 p.m.—Oscar Sugar, M.D.—“Treatment of Subarachnoid Hemorrhage”  
 2:30- 3:00 p.m.—Visit Exhibitors  
 3:00- 3:30 p.m.—G. O'Neil Proud, M.D.—“Management of Recurrent Acute Otitis Media”  
 3:30- 4:00 p.m.—Visit Exhibitors  
 4:00- 4:30 p.m.—Harris D. Riley, M.D.—“Subdural Hematoma in Infancy”

### LADIES ENTERTAINMENT

Monday, February 2, 1959

11:00 a.m.—Ladies' Brunch, Faculty Club, 601 N.E. 14th Street—Special Music, Monologue by Mrs. Elmer Capshaw—Door Prizes



## National Directors of Christian Medical Society to Meet Here

C. Jack Young, M.D., Oklahoma City member of the Board of Directors of the Christian Medical Society, announced recently that the national board of the organization has chosen Oklahoma City as the site of its next meeting to be held on January 17. The group will hold the one day meeting at the Executive Office of the OSMA. Following the official meeting, the local chapter of the organization will entertain the board members.

The Christian Medical Society is comprised of over 2,000 practicing physicians, medical students and medical missionaries, including some twenty-five members from Oklahoma. At the present time there are fifty active student groups throughout the nation as well as a number of graduate chapters. More than 350 medical missionaries, representing sixty different missionary societies, look to the Society for a great variety of professional services.

The officers of the Board are: President, Ralph Blocksma, M.D., plastic surgeon of Grand Rapids, Michigan; Vice-President, P. Kenneth Gieser, M.D., ophthalmologist of Wheaton, Illinois; Secretary, John Hyde, M.D., pediatrician of Oak Park, Illinois; and Treasurer, Paul Jorden, M.D., resident in orthopedic surgery at Hines, Illinois V. A. Hospital.

Other members of the Board are: David Busby, M.D., psychiatrist, Chicago, Illinois; William Erdman, M.D., Head of the Department of Physical Medicine, University of Pennsylvania, Philadelphia; John Frame, M.D., generalist, New York City; Reynold Gottlieb, M.D., radiologist, La Grange, Illinois; G. A. Hemwall, M.D., generalist, Chicago, Illinois; Emmett Herring, M.D., otolaryngologist, Hattiesburg, Mississippi; William Johnson, M.D., general surgeon, San Jose, California; Delburt Nelson, M.D., generalist, Chicago, Illinois; Charles Smith, M.D., radiologist, Indianapolis, Indiana; Everett Van Reken, generalist, Cicero, Illinois; C. R. Wall, M.D., generalist, Minneapolis, Minnesota; William Whiteley, M.D., neurosurgeon, Philadelphia, Pa.; C. Jack Young, M.D., dermatologist, Oklahoma City; Arwalt Kehle, senior, University of Illinois; Robert

# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association January, 1934.

### THE INCIDENCE OF SYPHILIS

J. F. Campbell, M.D., Muskogee

In an attempt to survey the Wassermann's run at the Fite Clinic Laboratories during the past four years, the fact was kept in mind that the majority of these cases were ambulatory, having walked in for a general examination, and only a small per cent of these cases were stretcher cases or hospital cases. Since the Wasserman test is run routinely in all general examinations, irrespective of the common complaint, the majority of the cases were diagnosed at that time.

The 2500 cases in this series include the following:

1014 white males with 108 positives or 11.1%.

1985 white females with 88 positives or 8.5%.

182 colored males with 41 positives or 23.9%.

215 colored females with 63 positives or 30.5%.

This makes a total of 301 positive reactions on 2500 individuals or an average of 12%, irrespective of sex or color.

These figures agree with those of previous reporters, reporting on early syphilis in that all types of syphilis occurs more frequently in white males than white females, and more frequently in colored females than colored males. However the variation is not as striking as in early syphilis.

### Editorial Notes—Personal and General

Dr. D. O. Smith, Tulsa, is the new President of the St. John's Hospital staff; Dr. F. L. Flack, Vice-President; Dr. J. E. McDonald, re-elected Secretary-Treasurer.

Dr. J. S. Rollins, Prague, opened the Rollins Hospital on December 16, 1933. This is a modern ten bed hospital with X-ray and laboratory facilities. Associated with Dr. Rollins are Doctors Frank H. Norwood and Ned Burleson.

Scheidt, junior, Northwestern University; Roy Shaffer, senior, University of Albany; Alfred Spiers, senior, Jefferson School of Medicine; and Ken Wiebe, senior, University of Kansas.

Further information concerning the activities of the Christian Medical Society and membership application procedure may be obtained by writing Doctor Young.

## **Committee on U.M.W.A. Meets in McAlester**

The O.S.M.A. Committee on Medical Care under the United Mine Workers Welfare and Retirement Fund met on December 18 at the Aldridge Hotel, McAlester. Resuming its activities in the long-waged dispute between organized medicine and labor leaders, the group reviewed past attempts to resolve differences and discussed future plans to end the discriminatory practices of the U.M.W. toward physicians and miners in the mining areas of the state.

Under a labor-sponsored agreement, mine owners pay a royalty of \$15 per ton into the welfare fund. Part of the money thus collected is used to provide medical and hospital care for the union members and their families. The denial of free choice of physician and hospital have created much dissatisfaction among miners and physicians alike.

For several years, the Oklahoma State Medical Association, through its committee, has tried unsuccessfully to eliminate the restrictive practices. The last attempt to negotiate with U.M.W. officials was stalemated when the labor leaders refused an audience to organized medicine.

In spite of previous setbacks, the committee is continuing to explore ways of settling the controversy and to return medical judgment to physicians.

Attending the McAlester meeting were: chairman William N. Weaver, M.D., Muskogee; committee members Floyd T. Bartheld, M.D., McAlester; Fred D. Switzer, M.D., McAlester, and Robert W. Lowrey, M.D., Poteau; district councilors, Paul Kernek, M.D., Holdenville; and C. E. Lively, M.D., McAlester; E. H. Shuller, M.D., McAlester, Alternate Delegate to the AMA; and Mr. Don Blair, Associate Executive Secretary of the O.S.M.A.

### **Classified Advertising Rates**

Members of the Association or widows of members are entitled to three months complimentary advertisement in this section.

Regular classified rates are \$5.00 per column inch (1 column wide and 1 inch deep). Advertisements must be received by the 15th of the month preceding the publication date.

### **CLASSIFIED ADS**

GENERAL PRACTITIONER needs associate for six months, thereafter to assume practice. Good suburban area of Tulsa, fine hospitals, excellent office facilities. Yearly gross \$60,000. Write Box 9681, W. Tulsa.

FOR SALE: 1 Mattern x-ray with fluoroscope and attachments, 100 M.A., excellent condition, regularly serviced by G.E.; 1 Beck Lee ECG, old model; 1 Microscope; 1 Leitz Photo-Electric Colorimeter; 1 Junior Centrifuge, practically new; various laboratory supplies. J. P. Irby, M.D., 819 E. Broadway, Altus.

WANTED: Medical Officer to work twenty hours a week in administering medical certification of airmen. Contact E. J. Anderson, Chief, Personnel Division, Civil Aeronautics Administration, P.O. Box 1689, Ft. Worth, Texas.

FOR RENT: Professional office space for two or three physicians. Reasonable rent. Plenty of off-the-street parking space. Contact James R. Ricks, M.D., 2312 N.W. 23rd Street, Oklahoma City. JA 5-7438.

## PHYSICIAN PLACEMENT

### General Practice

Albert Stanley Bailey, Jr., M.D., P.O. Box 1381, Westhampton Beach, L. I., New York, age 28, married, graduated from University of Oklahoma, 1955, presently in military service, will be available May, 1959.

John W. Kennard, M.D., 20 Olson Lane, Fort Rucker, Alabama, age 26, married, graduated from Bowman Gray School of Medicine, 1956, presently in military service, will be available September, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

John D. Wise, Booneville, Arkansas, age 30, married, graduated from University of Arkansas, 1954, veteran, available immediately.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

### Internal Medicine

Oscar C. Beasley, Jr., M.D., University Hospitals, Iowa City, Iowa, age 31, married, graduated from Vanderbilt University, 1952, veteran, will be available July 1, 1959.

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

### Locum Tenens

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

### Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

### Obstetrics and Gynecology

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

### Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Austin Leonard Gardner, M.D., 57 E. 38th Street, Indianapolis, Indiana, age 32, married, graduated from Indiana University School of Medicine, 1952, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

### General Surgery

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

### Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.





in every  
arthritic state...

## **maintenance therapy is still fundamental treatment**<sup>1,2,3</sup>

Sound, conservative therapy with salicylates has been consistently reaffirmed as basic, long-term maintenance therapy in the arthritides.

Buffered Pabirin provides superior maintenance therapy. It epitomizes fundamental long-term basic therapy since it can be given month after month without serious complications and with minimal problems to patient and doctor alike.

Buffered Pabirin is formulated to provide high and sustained salicylate blood levels. Each tablet consists of an outer layer containing a buffer (aluminum hydroxide), para-aminobenzoic acid, and ascorbic acid; a core of acetylsalicylic acid.

In the stomach, the outer layer quickly releases the buffer, which protects against nausea, dyspepsia and other gastrointestinal symptoms so frequently encountered with salicylates alone. The core of Buffered Pabirin then disintegrates rapidly, permitting rapid absorption of the acetylsalicylic acid for faster pain relief.

References: 1. Hart, D.; Bagnall, A. W.; Bunim, J. J., and Polley, F. H.: Ninth International Congress on Rheumatic Diseases, Toronto, Ont. (June 25) 1957. 2. Report of Joint Committee, Medical Research Council & Nuffield Foundation, Treatment of Rheumatoid Arthritis, British Medical Journal (April 13) 1957. 3. Friend, D. G.: New England J. Med. 257:278 (Aug.) 1957.

## *Buffered* **Pabirin®** *Tablets*

Each tablet contains:

Acetylsalicylic acid (5 gr.).....	300 mg.
Para-aminobenzoic acid (5 gr.).....	300 mg.
Ascorbic acid.....	50 mg.
Dried aluminum hydroxide gel.....	100 mg.

All Buffered Pabirin is sodium- and potassium-free.

Dosage: Two or three tablets 3 or 4 times daily.



*Photographs show 2-stage  
Tandem Release disintegration.*

# Editorials

## Art Centers of Oklahoma

In this issue, *The Journal* is acknowledging the whole man in the physician as the object for stimulation. The occasion is the opportunity to reprint the dedicatory address given by Doctor James Street Fulton at the opening of the Art Center in Oklahoma City. The hard, know-it-all, external shell of the physician has not destroyed but has only covered up the tender appreciation of the art that is in nature and the little-child wonderment at the meaning of it all. The philosopher's interpretation of the meaning of art gives substance to that which is inside the shell. The editors are grateful to Doctor Fulton and to the Oklahoma City Chamber of Commerce for this opportunity.

## On Medical Education

The Association of American Medical Colleges held its first institute on clinical teaching in the fall of 1958. The responsibility of the State schools and the Canadian schools toward preparing their students for practice led to a discussion of whether or not there should be two types of medical education. This idea was rejected, all agreeing that such a program would lead to a division into first and second class schools or "A" and "B" class schools, a situation from which medical education has only recently recovered.

In order to know where we are, perhaps we should take a look at the place we started and where we have been. American Medical Education has gone through three stages of development:<sup>1</sup>

1. The preceptorship: in which a young man attached himself to an older physician for better or for worse and studied the patients with him. Neither had much basic knowledge for there wasn't much.

2. The didactic period: in which medicine was taught by lecture—the student learned to fit the treatment to the symptoms or dis-

ease—a coated tongue, calomel—the back shivers, quinine. In 1908 at the time the Carnegie Foundation gave the money for Abraham Flexner to study American medical education, there were 155 medical schools. Only 22 schools required two or more years of college study for entrance. Fully 50 institutions demanded actual graduation from a four-year highschool or oscillated about its supposed equivalent. Eighty schools accepted students with no more than a grammar school education, often without certified proof of any previous education at all. In Oklahoma, in territorial days, an associate membership in the territorial medical society could be had if one was practicing medicine in the state and was an undergraduate of a school acceptable to the A.M.A. No point of progress as an undergraduate was specified.

Within a decade of the Flexner report, more than half of the 155 schools had gone out of existence and with few exceptions the rest linked themselves firmly with Universities, and all of them established basic facilities for preclinical departments.

3. In the third stage the student returned to the patient but he returned relying no longer altogether on the senses with which nature endowed him, but with those senses infinitely more acute, more accurate and more helpful by the processes and instruments which the biologic sciences had placed at his disposal. The return to the patient, however, took a special turn. It was not to the whole patient, but to the patient's disease. The new methods of diagnosis and treatment, instead of taking a place only as a means for achieving the goals of medicine, the cure and prevention of disease, became ends in themselves.

The latter change was not caused by, but triggered by the Flexner report. With the developments in the basic sciences and basic understanding, it was inevitable. It has, however, led to a degree of specialization that precludes comprehensive care and has



made imminent a fourth stage in the development of medical education—a return to the patient as a whole. It is becoming no longer enough, if it ever was, to assure a patient that he has nothing seriously wrong with him in terms of prospective death, but we must be able to interpret what is wrong with him in terms of prospective life.

The University of Oklahoma School of Medicine was slow to emerge from the didactic stage. Only 24 years ago the senior students had eleven one-hour lectures on typhoid fever. After the second world war, with the coming of modern medical educators, the transition to stage three became a reality. While we may have been slow getting into the third stage, we are already embracing the fourth stage with the arrival of more full-time clinical professors dedicated to medical education.

No man in the country has planned more medical schools and developed more full-time faculties than G. Canby Robinson. After spending six years helping develop the New York Hospital-Cornell Medical Center, he, unhappily, thought it best to retire in 1934. The following<sup>2</sup> is taken in part from a letter he wrote upon his retirement to each member of the executive faculty:

“On retiring from the post of Director of the New York Hospital-Cornell Medical College Association, I cannot refrain from addressing a few final words to those on whom rests the responsibility for the education of the students of the Medical College. I wish to emphasize the opportunities and serious responsibilities each one of you has individually and all of you have collectively in relation to the students. Young men and women, of the best type in this country available for the medical profession, are placing themselves in your hands, coming to you after a long and successful educational process, and embarking on a course of study often entailing not only severe discipline, but also material sacrifices on the part of their families and themselves. The objective of each member of the faculty must be to make of these students the finest possible members of the medical profession.

“I feel called upon to say as convincingly

as I can that the responsibility toward the students is not fully discharged by thorough instruction in each department. The aim of the faculty must be directed beyond giving the students a sound knowledge of medicine and a sage, efficient technical training. The teaching must include the cultivation of industry and of thoroughness in thought and action, and above all the inculcation of an earnest desire to be a life-long student of medicine.

“But the ideals of the Medical College should not stop there, and must extend to the molding of character as well as the development of mind. From the very first day the student enters the Medical College he must be exposed to those qualities of mind and heart which will teach him how to act with sincerity, courage, independence, and goodwill toward his fellows of whatever rank. The standards of professional life are largely set by the examples which are placed before the students in their plastic and formative years, and every teacher in the medical college should carry constantly in his thoughts the realization that he has about him young people whose future lives he may profoundly influence. The future medical graduate has a world to face in which there are many temptations to lower professional and spiritual standards, and each one should be equipped with an armor to enable him to resist these temptations. The greatest help that can be given to him comes from the example of his teachers, who will be for years the moral and intellectual guides in his professional life.”

Great progress has been made at the University of Oklahoma School of Medicine. Canby Robinson's concept is the same as our own. Even those members of the Association who are neither graduates of the school nor members of the faculty, can feel themselves a part of this great Medical Center if they will, at every opportunity, give a little push. Remember that for the want of a nail the battle was lost.

1. Much of this discussion is taken from Samuel W. Bloom's "Changing Perspective in Medical Education: from the View of the Sociology of Knowledge," which appeared in *The Pharos of Alpha Omega Alpha*, July 1958.

2. Robinson, G. Canby: *Adventures in Medical Education*: Harvard University Press for the Commonwealth Fund, 1957.



# Scientific Articles

## Modern Concepts of Prenatal Care

WE ALL HAVE an understanding of what is covered by the term "prenatal care," but generally its true extent remains a little vague. Actually prenatal care encompasses a program of examination, evaluation, observation, treatment and education of the pregnant woman, directed toward making pregnancy, labor and delivery as normal and safe for mother and child as possible. And I haven't mentioned advice and counsel which at times can be quite as important as the recognition of physical disturbances or emotional problems. It is our responsibility to detect and correct those abnormalities which now or in the future may affect the health of either mother or child. To do these things properly, we should begin with pre-conceptual examination, perhaps with the pre-marriage examination. And to carry this concept to its ultimate, since emotional health is intimately tied up with infancy and childhood, this care should begin in early childhood. Usually however, we begin our prenatal program not with the establishment of healthy attitudes in children, but when the patient walks into our office, be that in the second or seventh month of gestation. Incidentally, how often do you actually have a patient come in and ask to be checked over preconceptionally? In my practice it is so rare that I can remember every such

**A comprehensive concept of prenatal care as it relates not only to the physical well-being but also to emotional and mental tranquility with the answers to many disturbing questions directed toward this**

EDWIN J. DeCOSTA, M.D.

Since graduating from Rush Medical College in 1929, Edwin J. DeCosta, M.D., has been certified by the American Board of Obstetrics and Gynecology.

An Associate Professor of Obstetrics and Gynecology at Northwestern University Medical School, Chicago, Doctor DeCosta holds memberships in the American Gynecological Society, American Association of Obstetrics and Gynecology, American College of Obstetrics and Gynecology, American College of Surgeons and, in addition, is Secretary-Treasurer of the Central Association of Obstetrics and Gynecology.

*This paper was presented to the Oklahoma City Clinical Society on October 29, 1958.*

patient. So we brand her as being a bit over-anxious, which she generally is, and we might even be a little bit annoyed. But really we are wrong.

There is a tendency in many communities to encourage classes for expectant parents, both fathers and mothers. Some of these classes are subsidized by teaching institutions, some by the Red Cross, some by local health departments, some even by medical societies and nursing associations. Whatever our personal opinion may be with regard to who should take the lead in this educational effort, it too can only do good by making the public conscious of the need for medical guidance. Although some of us may not believe that specialized classes, such as those in relaxation, should be included in this program, we must all agree that classes covering simple anatomy and physiology, hygiene and nutrition, and baby care can be most helpful to inexperienced parents. If

we are unwilling to provide this type of education, we can be sure those less informed and experienced will do it for us.

Prenatal care is exceedingly important in another respect. Today most urban women, at least in the midwest, are conditioned to accept, even expect, prenatal care. This gives us the chance to thoroughly examine these patients and to put into practice the philosophy of preventive medicine, about which we all talk. Seldom do we encounter people who are so willing to carry out our slightest wish. Although this "control" only lasts a few months, during that time, *if we are willing*, we can render them invaluable service. To enumerate a few of these services, let us mention recognizing and treating dental caries, lues, pulmonary tuberculosis, and emotional disorders, and vaccination against poliomyelitis.

But there are other benefits in making the most of our opportunities at the time of prenatal examination. Approximately 230,000 people die annually of carcinoma. Something like 60% of carcinoma in the female involves sites readily accessible to direct examination: the mouth, skin, breasts, uterus and rectum. It is needless to mention the importance of early diagnosis and prompt, adequate treatment if we are to effectively combat this scourge. Nor should we permit the youthfulness of our patients to dissuade us from the necessity of careful examination of their entire bodies. One occasionally discovers carcinoma of the breast in the pregnant patient as well as carcinoma of the cervix. We consider the Papanicolaou smear as important as the Kahn test. Although the significance of carcinoma in situ during pregnancy is still open to discussion, it is our belief that in the great majority of instances it is a true intraepithelial carcinoma and as such the forerunner of invasive carcinoma. Therefore, positive cytology in the pregnant patient demands the same attention as it does in the non-pregnant. This means biopsy, often repeated at bimonthly intervals, to be certain that invasive carcinoma is not overlooked. We have never observed any untoward effects from the biopsy. This is not really the place to discuss the therapy of either breast carcinoma

or invasive cervical carcinoma in the pregnant woman—but I cannot refrain from just a word or two. Carcinoma in the pregnant woman is to be treated like carcinoma in the non-pregnant. If a radical mastectomy is indicated, it is performed; and if radiation of the cervix is indicated, it is performed. The patient is no more able to tolerate neglect when she is pregnant than when she is not!

I cannot cover all phases and problems of prenatal care nor will I be presumptuous enough to assume that I am bringing you very much with which you are not already familiar. Permit me just to express my views on certain specific problems which arise during the prenatal period and to emphasize their management from the practical viewpoint. Much of what I will say stems from recurring questions and complaints, probably the same ones which you encounter daily in your practice.

*Doctor, just what should I eat?* In recent years we have come to question the importance of rigid standards of feeding as enunciated by various learned counsels. Today many appraise adequate feeding on the basis of the individual's sense of well being, her ability and capacity to function properly and the lack of evidence of nutritional disturbance. This does not mean that we are to ignore the various food elements, minerals and vitamins, but it does mean that a specific amount of this or that is probably quite unnecessary as a general rule. In other words, let common sense guide us rather than a diet list—and common sense will include attention to one's likes and dislikes. Food must be palatable and tasty, particularly to the person eating it.

Currently there is a tendency in some quarters to assume that natural foods—fresh milk, green vegetables, etc.—are superior to processed foods, concentrated foods and fortified foods largely because they occur naturally. Maybe this is true; maybe it isn't. One does not have to look far to find protagonists for either attitude. But in one respect processed and prepared food may have to be critically chosen. These foods are often high in sodium to make them more



palatable. But sodium under certain circumstances may be most undesirable.

Still the relationship of one diet or another to the various complications of pregnancy is far from clear. Dieckmann ably summarized this aspect:

"According to several reports about nutrition in pregnancy there will be no abortions, toxemia, anemia, premature deliveries, stillbirths, fetal abnormalities, etc., if the patient eats the correct diet. Furthermore, the baby will be healthy, big, strong and presumably a potential genius. No one believes this literally—certainly not the authors of these various articles—but that is what they state."

It is exceedingly difficult to accurately assess the nutritional state of the individual. There are several major sources of error. One lies in the difficulty in objectively evaluating nutritional deficiency; different observers come up with different conclusions. Another error arises from the assumption that certain clinical and laboratory findings are evidence of nutritional deficiency. For example, low hemoglobin, gingivitis, low blood pressure and ease of fatigue may well be due to other than nutritional lack. Finally, we must remember that there is no laboratory standard of nutritional deficiency, except in almost terminal stages. Serum protein, serum calcium, blood volume, hemoglobin and blood counts are usually normal even in individuals who evidence malnutrition.

Although beset with problems, we do have practical examples of presumed dietetic deficiency. Two and a half major wars have helped to provide many examples. It is interesting to learn that the mother's health is remarkably well maintained on poor feeding and that there is no obvious relationship between nausea and vomiting, weakness, skin diseases, resistance to infection, abortion and toxemia, and deficiency diets. Actually C. A. Smith reported a decrease in toxemia in Holland during the famine of 1944-1945. There was a slight increase in the incidence of premature labors, low hemo-

globins, and inefficient lactation, but nothing very marked.

With reference to the baby's weight, there is almost no effect unless the mother is actually starving, existing on something less than 1500 calories per day. Nor is there evidence that moderately deficient diets lead to fetal death or decreased vigor, especially when the deficiency is of short duration.

Thus, to the question of diet, we can answer that under ordinary circumstances we will not encounter privation sufficient to influence either the health of mother or fetus; therefore the patient should continue on the same diet to which she is accustomed. Perhaps we should add a little iron or more iron-containing foods, not because there is a slight decrease in R.B.C., hemoglobin or hemacrit but rather to establish an optimal maternal iron reservoir to meet the fetal needs of some 400 mg. plus the blood loss at delivery.

*But shouldn't I curtail proteins? I've heard that proteins affect the liver and kidneys and cause toxemia?* The answer to both questions is a definite "no!" For the past 25 years most of us have emphasized the importance of a high protein diet during pregnancy. There are still a few die-hards who recommend the low protein diets of the 1890's, but for most of us it is a high protein diet and on it toxemia has all but disappeared. Perhaps the most inspiring results are those reported by Hamlin from Sydney, Australia. Before 1948, eclampsia occurred in one out of every 350 booked patients; since then the incidence has dropped to 1 in 7,000. This was brought about primarily by a change in diet. A high protein, high vitamin, low salt, low caloric diet was substituted for the high carbohydrate, high salt, low vitamin diet these women were accustomed to. They were taught to shun the baker and cultivate the butcher, to avoid excess of wheat and to eat meat, to lay down the bread knife and take up the carving knife. They were instructed to eat to keep thin by taking meat, eggs, and milk, and avoiding pastries, sweets and breads. The results were dramatic.

*What about salt? I've heard sodium is*



*dangerous during pregnancy.* Some women retain sodium, probably on a hormonal basis, and this in turn holds fluids. The accumulation of fluid appears associated with or predisposing to the development of toxemia. Therefore we believe that restriction of sodium, in all forms, is desirable particularly during the last trimester. And we must not forget that many popular nostrums such as Alka-Selzer and Tums, contain sodium bicarbonate, and that pastries and biscuits contain baking soda in the the baking powder. Sodium chloride is often ingested without our knowing it. For example, soup is not worth drinking unless it is salted, soy bean sauce is mostly salt, and most sea food is full of salt as are many cheeses. We definitely urge a low sodium diet.

*How much weight should I gain?* We believe that a weight gain during pregnancy of 15-20 pounds is ideal. Furthermore each patient should be individualized. It may be that the underweight patient should be encouraged to gain more, while the overweight patient should be encouraged to gain less. But we do not believe that pregnancy is the proper time for weight reduction. A diet of approximately 2600 calories per day should be adequate. It can be made up of some 300 gms. of carbohydrate and 120 gms. of fat in addition to the 90 gms. of protein. While we are not going to count calories nor make a ritual of the meal, we do aim to include a variety of minerals and vitamins. Again we will minimize the sodium intake and aim for  $1\frac{1}{2}$  to  $2\frac{1}{2}$  pound gain per week.

*What kind of supplemental minerals and vitamins do I need?* From what has already been said, it is obvious that the answer is "none" if the patient has been on a normal diet. I am sure that you, as well as I, are continually beseiged by this detail man or that magazine or mail advertisement, emphasizing the absolute need for prescribing some sort of supplement to the pregnant woman's diet. Yet the human family has done a rather fine job of surviving during the last million odd years without knowing about these supplements. A pint of milk per day will give 1.2 mg. of calcium, close to the maximum calculated for late pregnancy and certainly more than is needed during the first five months. Meat and vegetables

provide additional calcium, so there is really little reason for any "calcium pills." But you prescribe them because Doctor Jones does; besides, patients have come to expect this little attention.

Assume, then, that whether necessary or not, we will prescribe some kind of supplemental medication. We will include iron, the common vitamins, and calcium. For years, calcium as the phosphate, has been widely used as supplemental medication. During the past few years we have been told that the phosphate interferes with absorption of the calcium and may lead to deficiency in calcium absorption in spite of supplemental medication. This is believed to be the cause of leg cramps even though the calcium intake may be more than adequate. So today the manufacturers use calcium lactate or calcium carbonate instead of the now undesirable dicalcium phosphate. Of course we still have phosphate from other sources in the diet to worry about. To get rid of the phosphate we use aluminum hydroxide. The next time your patient complains of leg cramps, give her one of the aluminum hydroxide preparations rather than more milk. You will be happily surprised. This, in spite of the very recent reversal by some nutritionists of their attitude toward phosphorus.

A further word about the need of iron is in order. The human body contains some 3-4000 mg. of iron of which 1800 to 3000 mg. is present in the circulating hemoglobin mass. The rest is in myohemoglobin and stored in the liver, spleen and bone marrow. The metabolism of iron is very efficient. Still the body loses 1-1.5 mg. per day while some 20-30 mg. are lost at the menstrual period. If we remember that the average diet provides only 0.5 to 1.5 mg. per day you see at a glance that most women are in a rather precarious state of iron balance. The menstrual loss must deplete their reserve so that there is little to fall back on during pregnancy. In the past, apparently the iron intake was higher than today; otherwise none of us would be here. Be that as it may, most pregnant women do evidence an iron deficiency anemia. As a safeguard against blood loss during labor and to provide the fetus with its needs, supplemental iron is often required. Only ferrous iron is

absorbed and experience indicates that ferrous sulfate gr. iii t.i.d. is generally sufficient to meet all needs. At times trace elements like cobalt favor absorption and utilization but folic acid, ascorbic acid and vitamin B<sub>12</sub> serve no purpose in the treatment of iron deficiency anemia. These substances are indicated in the treatment of megaloblastic anemia but this is a rare complication of pregnancy.

Now let us consider a few very simple questions. *When may I travel during pregnancy?* The answer is: at any time. Critical studies made during the war years did not indicate that the traveling of pregnant women had any bearing on abortion or prematurity. Nevertheless, I do make certain suggestions when asked this question. I suggest that automobile travel be avoided if possible, not because the jostling will shake off a well attached conceptus, but rather to avoid a difficult situation in an unknown locality if some complication should arise coincidentally. Today, with the high standard of medicine most everywhere, even this provision might well be theoretical. If traveling in any form of conveyance leads to nausea, one of the new anti-emetics like thorazine or dramamine is of great help.

For years we have counselled that the pregnant woman should take it very easy at the time of the month when she would normally menstruate. How many women knew when they should menstruate beyond the first missed period? This precaution requires a menstrual audit which few women are interested in making. I doubt if the time of the month has any bearing on the tendency to abortion or early labor.

*How long may I bathe?* I don't think it matters, as long as due consideration is given to the mechanical problem of getting in or out of the bathtub. Certainly no one could object to showering. For those who enjoy soaking, what harm can come? Most city water supplies are without pathogens. The few coliform organisms are no more than those normally found around the vulva. And besides, no water will get into the vagina unless the patient literally stands on her head.

*What can I do for a vaginal discharge?* Since there are many different reasons for discharge, we must determine the cause before we can undertake treatment. Some increase in secretion is physiologic but this should not be associated with either itch or odor. The latter complaints suggest a specific vaginitis, probably trichomonas or yeast. Once having demonstrated the causative organism, we treat the patient just about the same as we do the non-pregnant. However, any form of insufflation or douching is avoided. Should intravaginal medication be indicated, the patient is instructed to lie down and to make the insertion with utmost gentleness.

The patient with yeast is specifically investigated with regard to incipient diabetes. Even if negative, a low carbohydrate diet will be helpful. Incidentally, propion gel, in my experience, has been as satisfactory as anything in treating yeast vaginitis during pregnancy.

*I have just been exposed to measles; what should I do?* During some years, like the present, measles, both rubeola and rubella, reach almost epidemic proportion. To answer this question, we must know if the patient has previously had the measles to which she presumably was exposed, the true nature of the measles, and how far the pregnancy has progressed. Actually we are primarily concerned with rubella and only during the first three months of pregnancy. If the patient has been definitely exposed to german measles and has never had them and is in the first trimester, I would give her 20 cc. of gamma globulin prophylactically.

*How is my blood?* Once this question referred to lues; now it usually indicates an interest in Rh factor.

The determination of the Rh reaction of the mother's blood should be a standard procedure. I might add, a standard office procedure, since the technic has been so simplified that anyone can carry it out. If the reaction is negative, we must know whether the blood contains antibodies. The determination of titer in our community is still a hospital or large laboratory procedure.



While it is quite true that we are unable to alter sensitization once it has occurred, we still can do a lot in an effort to save the affected child. We can check the cord blood immediately at birth, we can closely watch the baby during the first few hours and days of life and we can be prepared at all times for replacement transfusion if unfavorable signs develop.

ABO erythroblastosis is generally not as serious as Rh, but it probably is more common. During the past year we have paid attention to the possibility of these sensitivities and the husbands of all O patients are typed. If the husband is A, B or AB, we take cord blood at the time of birth to check the baby's type and establish a base line for serum bilirubin and blood count. If the baby is A, B or AB, we pay attention to its clinical condition, evidence of jaundice, increase in bilirubin and drop in R.B.C. Occasionally these babies will need replacement transfusion.

Another problem may be encountered with the sensitized Rh-mother. If the fetus dies in utero and is not delivered within a couple of weeks, the mother may develop afibrinogenemia. In this serious condition, the normal blood clotting mechanism fails and unless fibrinogen is promptly administered, the patient may bleed to death. Several grams of fibrinogen should be immediately available to a well-organized maternity ward.

Pregnancy is an emotional as well as a physiological experience. Earlier we alluded to the need of proper education to allay the anxieties and fears which are so common. Unfortunately we usually do not have the opportunity to do this before pregnancy. But we can be aware of possible problems and take steps to prevent them. We must remember that fear may arise from many factors associated with pregnancy. To enumerate a few: fear of having an abnormal baby, or a stillborn baby, of losing one's health or attractiveness, of suffering, of death, of not getting to the hospital, of cost, and of future responsibilities. Then guilt may play an important role: guilt for previous behavior, for inability to take it, for not wanting to nurse, for having fears, for not

wanting to be pregnant at this time—to mention a few.

We can do a lot to calm the troubled waters by recognizing these anxieties, by giving the patient personal attention, by reassurance, by instruction and counsel, by seeking cooperation of the husband and family, and finally by enlisting expert psychiatric aid when needed.

One phase of prenatal care often neglected can be termed "hospital preparation." Ideally, the patient should visit the hospital, including the labor suite and nursery, prior to actual admission. This gives her a sense of belonging which helps to allay anxiety.

Then the patient must be instructed in "what to expect." The primagravida is unfamiliar with and fearful of the future. She may not know what contractions are like. She should be made to understand that certain things will happen, that she will experience recurring contractions, that she may lose fluid or blood, and that when these phenomena occur, we want to know. These things we generally do—but how often do we pay any attention to her stomach contents? Many women in labor will stop for a snack on the way to the hospital—unless cautioned against such behavior. She doesn't know that the emptying time of the stomach is delayed during labor, that she may vomit if given a general anesthesia, and that today anesthetic accidents are the third commonest cause of maternal death. Caution against the ingestion of food or fluid if there is the slightest evidence of impending labor may avoid serious anesthesia difficulties. And we might add in passing that the wise man will either avoid general anesthesia or empty the patient's stomach before using general anesthesia if food has inadvertently been taken.

We could discuss many other problems which arise during the prenatal period—the value of breast feeding and the preparation for nursing, backache, varicosities, urinary disturbances, heart burn, and dental care, to mention a few. These we will save for another time.

104 South Michigan Ave., Chicago 3, Illinois



# Gastritis and Hemorrhage

EDDIE PALMER,<sup>1</sup> in a review of 2,500 gastroscopic examinations found that he made a diagnosis of hypertrophic gastritis in 190 of these, or approximately 7.6%. He felt, however, that hypertrophic gastritis was actually the primary cause of the patient's gastrointestinal complaints in only 61 of these cases. There was sudden hemorrhage from 19 in this gastroscopic series and in only six of these was the hemorrhage thought to be due to the hypertrophic gastritis. Palmer thought that it was difficult to state that hypertrophic gastritis was necessary as a clinical entity although it certainly could be demonstrated as a visible change in the gastric mucosa and as microscopic alterations in structure of the stomach wall. He thought that many times, gastritis (hypertrophic) was present, and that the patient's symptoms could just as well be explained on the basis of functional indigestion with or without the presence of the demonstrable hypertrophic gastritis. The bleeding, thought in many cases to be associated with hypertrophic gastritis, was simply due to acute erosive gastritis superimposed on the underlying hypertrophic gastritis.

F. Avery Jones,<sup>2</sup> in a study concerning hematemesis and melena in a series of over 2,000 patients who either had upper G.I. bleeding prior to or shortly after hospitalization, found in seven cases a diagnosis of gastritis was made at operation or gastroscopy.

## H. THOMPSON AVEY, M.D.

H. Thompson Avey, M.D., graduated from the University of Wisconsin Medical School in 1939 and since that time has been certified by the American Board of Internal Medicine. In addition to other memberships, he is a Fellow of the American College of Physicians.

The Oklahoma City internist also serves as Assistant Professor of Medicine at the University of Oklahoma School of Medicine.

*This paper was presented before the Regional Meeting of the American College of Physicians, Hot Springs, Arkansas, October 18, 1958.*

These seven cases amount to only a little over one-third of one per cent of the entire series of over 2,000 cases of bleeding, however, of the 167 cases in which the diagnosis was presumed to be acute ulcer, but was not proven on x-ray, it is fair to consider one-half to be due to acute gastritis, rather than acute ulcer, then almost 4.5% of the entire series would be due to gastritis.

Having thus discussed briefly the occurrence of gastritis in association with upper G.I. bleeding as mentioned in the literature, we should like to record the story of the particular case which aroused our interest in this aspect of G.I. hemorrhage. A 68 year-old male was admitted to St. Anthony

Hospital on 6/19/56 with chief complaint of slight pain in the left upper quadrant of the abdomen, associated with nausea, weakness and faintness, beginning in the preceding evening. He had noted passage of several tarry stools during the night and the morning before his admission to the hospital.

In the history of the present illness, the patient stated that in 1936 he began to have some burning in the left upper quadrant of the abdomen and a bloating sensation coming on after meals. This seemed to be associated with constipation. Bismarex seemed to help him. He had diagnostic x-rays performed at Wewoka, Oklahoma and no x-ray changes in the upper G.I. tract were noted. A diagnosis of hyperacidity was made.

Patient continued to have similar symptoms with bloating and left upper quadrant burning off and on until the fall of 1945. At this time he was examined at the Mayo Clinic, where x-ray studies were also negative and diagnosis of hyperacidity was again made. He was placed on a bland diet, and it was suggested that he use Metamucil for his constipation. This combination of diet and Metamucil seemed to relieve his symptoms for some time. In 1947 he again had recurrence of nagging pain in left upper quadrant of the abdomen, and went to the Fite Clinic at Muskogee where the possibility of food allergies was suggested since at the same time the patient was also having some hay fever and certain amount of asthma.

Tests were run and after eliminating certain foods which the tests indicated that he should, the patient did well for approximately five years.

In 1953 he began to have trouble with aches and pains in the shoulders and back, suggestive of osteoarthritis. He was also under a good deal of extra pressure on the job as an auditor. In June 1954 he again developed burning in the left upper quadrant relieved by bowel movement. Patient felt that constipation was part of his problem and he was re-started on Metamucil. Gallbladder visualization showed normal functioning of the gallbladder with no evidence

of stones. In August 1954, when the upper abdominal burning and stinging continued, upper G.I. series was performed and this was found to be negative. However, he did respond symptomatically to the use of milk feedings and Amphogel between meals.

In late May 1956, the patient was under a good deal of pressure on his job, and rather lost his appetite. He was taking some Vitamin D and Calcium for his arthritis and also was taking Gms. 0.2 quinine each evening for relief of aching in his legs at night.

Past medical history revealed that patient had had an operation for rectal fissure and hemorrhoids in 1953 at Muskogee. He had also had typhoid fever at age 25.

On examination on June 19, 1956, blood pressure varied between 98 and 102 systolic over 60 diastolic, whereas patient's usual blood pressure range was from 120-150 systolic over 80-90 diastolic. Hemoglobin was 11.5 grams, WBC 13,900, but following admission patient continued to bleed despite replacement therapy with transfusions. Upper G.I. series on 6/20/56 showed only a small esophageal hiatal hernia. Around midnight on June 21, 1956, emergency gastrectomy was performed.

*At operation*—There was a marked infiltration of the entire stomach wall with multiple areas of superficial ulcerations with exudate and multiple bleeding points. Grossly this appeared to be acute and chronic gastritis. A two-third resection, modified Hoffmeister modification of posterior Polya, was performed.

*Microscopic report was as follows*—"Muscle wall is thickened and in some areas contains fairly dense infiltrations with lymphocytes, polymorphonuclear leukocytes, and eosinophiles. Many thick walled blood vessels are present within the wall of the stomach. Diagnosis: Subacute inflammation of the stomach."

Following operation, the patient had no more hemorrhage but had a rather stormy course which included a complicating infection in the upper end of the operative incision.

When last contacted in September 1958,



the patient stated that he was doing fairly well from the standpoint of having no abdominal pain or discomfort. He was maintaining his weight well, and had no further hemorrhage. He was still troubled with constipation for which he used Metamucil fairly regularly, and occasionally a little mineral oil.

With this case to stimulate interest, a preliminary review was made of the charts of 75 unselected cases of gastrectomy at St. Anthony Hospital, Oklahoma City, from 1949 through June 1956. Hemorrhage was either the only reason or part of the reason for operation in 25 cases. Of these 25 cases associated with hemorrhage, two represented hemorrhage due to gastritis. Although this series is too small to be statistically significant, one might expect that if the trend continued, one out of every 12 to 13 patients operated on for hemorrhage would have gastritis. In the entire 75 cases, gastritis was the final diagnosis in 3 or 4%.

These case reports bring up several interesting questions such as (1) why do some people have gastritis instead of ulcers, (2) why do some patients with ulcers and some with gastritis bleed and others never do, and (3) what factors tend to produce so-called gastritis?

Some acute gastritis and some acute ulcers with hemorrhage may be secondary to mechanical or chemical trauma.

Douthwaite and Lintott<sup>3</sup> described focal reaction with hyperemia around undissolved aspirin. Sir Arthur Hurst<sup>4</sup> thought aspirin was the major cause of onset of bleeding in one third of his patients. Wolf and Wolff<sup>5</sup> were unable to produce an aspirin reaction in "Tom." Muir and Cossar<sup>6</sup> found six out of 20 patients had blood staining of gastric secretions following ingestion of aspirin. They noted less tendency for bleeding after using soluble calcium aspirin than insoluble aspirin. They described aspirin dyspepsia clinically in 110 out of 318 patients.

Brown and Mitchell<sup>7</sup> discussing 70 cases of upper G.I. hemorrhage from peptic ulcer stated that in 72%, hemorrhage followed ingestion of salicylates such as aspirin, Em-

pirin compound, Anacin, Alka-Seltzer, Bufferin and sodium salicylate combinations. Hemorrhage followed ingestion of iron containing compounds in two and in seven patients following ingestion of alcohol. Seventy-seven percent of patients with perforation had taken salicyl compounds or alcohol, or both just previous to the perforation. Jankelsen and Snapper<sup>8</sup> do not think salicylates are a common problem in hemorrhagic gastritis.

It has been well documented that many of our new steroid compounds of the ACTH and cortisone family tree have a hormonal ulcerogenic effect in individuals with ulcer diathesis. Furthermore, some of our other popular anti-rheumatism drugs such as butazolidin seem to precipitate changes in gastric and duodenal mucosa in some individuals. It seems reasonable that such medications might cause an exacerbation of gastritis in those individuals who for reasons unknown manifest their psychosomatic gastro-intestinal reaction as gastritis rather than peptic ulcer.

The Zollinger-Ellison syndrome has recently been reported in which gastritis accompanies certain types of pancreatic tumors.

Machella<sup>9</sup> points out that one can rarely predict the type of gastritis i.e., superficial, hypertrophic, or atrophic which will be found by the gastroscopist when the clinical manifestations are sufficiently characteristic to suggest a diagnosis of chronic gastritis. For this reason he prefers the phrase "chronic gastritis syndrome."

The clinical recognition of gastritis depends on eliciting a history of gastric symptoms occurring shortly after the ingestion of food during periods of emotional stress. The symptoms are not relieved by further ingestion of food. Confirmation of the clinical diagnosis and differentiation of the types of gastritis require a direct look preferably by gastroscopy, and occasionally by surgical operation.

Should the patient with gastritis or ulcer hemorrhage, then perhaps, for proper care, one should take the advice of Lewis who stated, "The ideal professional combination



is a keen physician and a somewhat reluctant surgeon!"

### Summary

The incidence of serious upper gastro-intestinal hemorrhage due to gastritis as it is related in the literature is described. A representative case summary of hemorrhage from gastritis requiring gastrectomy for control of hemorrhage is presented. Some of the questions raised by the problem of hemorrhagic gastritis are discussed and some of the possible etiologic factors reviewed. The need for further clinical observation and research to aid in prevention and management is mentioned.

### REFERENCES

1. Palmer, E. D., Chronic Hypertrophic Gastritis, *Med. Scandivan.*, 147: 43-49 (Oct.) 1953.
  2. Jones, F. Avery, Hematemesis and Melena, *Gastro-Enterology* 30: 166-189 (Feb.) 1956.
  3. Douthwaite and Lintott, G.A.M.: Gastroscopic Observation of the Effect of Aspirin and Certain Other Substances on the Stomach, *Lancet* 2: 1222 (26 Nov.) 1938.
  4. Hurst, Sir Arthur, *Brit. Med. Journal*: I 768 (1943).
  5. Wolf and Wolff, Oxford-University Press: (1943).
  6. Muir, A. and Cossar, I. A.: Aspirin and Ulcer, *Brit. M.J.* 2: 7 (July) 1955.
  7. Brown, R. K. and Mitchell, N., *Gastro-Enterology*, 31: 1928-2-3 (August) 1956.
  8. Jankelsen, O. M., *American Journal of Gastroenterology* 30: No. 3-260-265 (Sept.) 1958.
  9. Machella, T. E., Clinical Manifestations of Gastritis Syndrome: Symposiums on Clinical Medicine; *Medical Clinics of North America* 37: 1769-1776 (Nov.) 1953.
  10. Lewis, I., *Proc. Roy. Soc. Med.* 43: 152, 1950.
- 437 Northwest 12th, Oklahoma City, Oklahoma.

## 53rd Annual Meeting

of the

# Oklahoma State Medical Association

TULSA, OKLAHOMA

April 20, 21, 22, 1959

Mayo Hotel

### GUEST SPEAKERS

Robert W. Buxton, M.D., Baltimore, Maryland

William D. Davis, Jr., M.D., New Orleans, Louisiana

Isadore Dyer, M.D., New Orleans, Louisiana

Charles B. Huggins, M.D., Chicago, Illinois

Ormand C. Julian, M.D., Chicago, Illinois

E. Perry McCullagh, M.D., Cleveland, Ohio

P. Robb McDonald, M.D., Philadelphia, Pennsylvania

Michael L. Mason, M.D., Chicago, Illinois

Willard H. Parsons, M.D., Vicksburg, Mississippi

Nathan J. Smith, M.D., Madison, Wisconsin

Harwell Wilson, M.D., Memphis, Tennessee



## Coronary Disease, Cholesterol, Corn Oil and Confusion

DAVID C. MOCK, Jr., M.D.

### THE AUTHOR

David C. Mock, Jr., M.D., graduated from the Hahnemann Medical College, Philadelphia, in 1948. Certified by the American Board of Internal Medicine, Doctor Mock is also a member of the International Basimetric Society.

An Instructor in the Department of Medicine at the University of Oklahoma School of Medicine, Doctor Mock was formerly in private practice in Redlands, California.

*This paper is from the Department of Medicine, University of Oklahoma School of Medicine and the Veterans Administration Hospital, Oklahoma City, Oklahoma.*

THE ALREADY HIGH (and probably rising) incidence of coronary artery disease among Americans has prompted increasing research directed toward defining the etiologic factors. Although it is probable that when the final information is in several agents will be implicated, current knowledge to date, as exemplified in the Framingham study by the National Heart Institute, rather clearly points out three things associated with an increased incidence of coronary disease. These are obesity, hypertension, and an elevation of the level of serum cholesterol.<sup>1</sup>

The first two factors are readily measurable, and attention has been focused on the last for a variety of reasons. Initially, Russian physiologists discovered in the early 1900's that fatty deposits appeared in the arteries of rabbits receiving cholesterol in their diets. Although it was an interesting experiment, the rabbits did not die of heart attacks and no conclusions linking cholesterol, atherosclerosis, and coronary artery disease appeared—especially in a time when coronary occlusion was rarely a diagnosis in any event. Later, however, when low cholesterol diets were prescribed for patients with atherosclerosis, it was found that humans synthesize their own cholesterol, and that unlike the Russian rabbits, marked reduction in the blood cholesterol did not follow

the restricted intake. Monkeys which have been fed diets containing large amounts of cholesterol have also developed atherosclerosis, but likewise have not suffered myocardial infarctions. A possible clue in this regard may be offered in the work of Lindsay and Chaikoff<sup>2</sup> on the Doguera baboon. Examination of vascular material from these animals, which had received a diet low in fat and almost totally lacking in cholesterol, showed the intimal lipid to be found along regenerating elastic fibers in the deeper layers of the atherosclerotic plaques, suggesting that it may have been synthesized in situ, rather than transported there by diffusion from blood circulating in the lumen. Foam cells were not present, but small de-

posits of cholesterol were found deep in the intimal plaque. This type of finding approximates that observed in human arteriosclerosis, and is in sharp contrast with the intimal thickening due to lipid-filled foam cells found in the lesions of the cholesterol-fed bird and rabbit, and the hypercholesterolemic dog. The lesion induced by the feeding of cholesterol then, is perhaps a very different sort of process than that occurring "naturally."

A second reason for selecting cholesterol as a causative factor is an apparent association between a high consumption of fat and frequent coronary artery disease. As high fat intakes are often paralleled by high blood cholesterol levels, it seems possible that this might provide an attractive etiologic explanation for atherogenesis. In 1953, Keys<sup>3</sup> asserted that countries with low fat consumption had a low incidence of coronary disease, as in Japan where the average person receives less than 10% of his calories as fat. Conversely in countries such as the United States, where the average person receives 35-45% of his calories as fat, the incidence of coronary disease is more than ten times that of the Japanese. Other countries appeared to show a parallel incidence proportionate to fat consumption. In 1957, however, Yerushalmy and Hilleboe<sup>4</sup> re-evaluated the problem from the aspect of the biostatistician. Especially they objected to Keys' selection of six countries (Japan, Italy, England and Wales, Australia, Canada, and the U. S. A.) to draw a *general* conclusion. By way of illustration they prepared a graph showing that the death rate due to cerebral hemorrhage decreased as fat consumption increased in the countries of Japan, France, Austria, Switzerland, Norway, and the Netherlands. While this is an interesting observation, they point out that it does not justify concluding that a high fat intake is a reliable preventive for a cerebral hemorrhage. Further, they presented an analysis of data gathered from all countries (22) for which suitable data was available, and showed that inclusion of this larger number of countries in the sample greatly reduced the apparent association between fat intake and heart disease. In addition, when data for animal protein consumption was

compared with heart disease rates, a higher correlation was found than in the case of fat. They finally carefully explained that an association of two items is not necessarily a pure cause-and-effect relationship. Still another facet is presented by Yudkin<sup>5</sup> who associated high sugar consumption with an increased incidence of coronary disease.

While much of the current research is concerned with measuring cholesterol levels, Gofman and his group have channeled their major effort into the lipoprotein fractions. In 1950 he contended that there were particular cholesterol-bearing lipoprotein and lipid fractions present in the sera of certain normals and of practically all patients with proven atherosclerosis. He found these fractions to be present even in the presence of a normal cholesterol level and consequently held them to be a more reliable indicator of atherogenic activity.<sup>6</sup> He described an "atherogenic index" based on the levels of the S<sub>c</sub> 0-12 and S<sub>c</sub> 12-400 lipoproteins found in approximately 1500 clinically healthy males under the age of 45. One month to two years later, five of the group had developed a myocardial infarction, and examination of the lipoprotein data determined at the time they were clinically healthy showed an elevated atherogenic index as compared to matched controls.<sup>7</sup> Much controversy has arisen over the merits of measuring this or other of the various lipid fractions, but the cholesterol assessment has one distinct advantage: it is simpler to do than most, and does not require elaborate equipment. For these reasons perhaps, most investigators are writing of their experiences using this lipid fraction as the denominator.

In the July, 1952 issue of the *Journal of Clinical Endocrinology and Metabolism*, there appeared a brief letter to the editor addressed by Kinsell and his group at the Highland Alameda County Hospital. In it was described their observation that patients ingesting a special diet containing large amounts of vegetable fat but no carbohydrate had a large and sustained fall in the levels of their serum cholesterol and phospholipids. A prompt return to control levels occurred when the usual diet was re-established. They also noted that patients



taking the synthetic diet high in vegetable fat could tolerate an additional 60 gm. of cholesterol in their diet without significantly elevating their serum cholesterol levels. On the other hand, patients taking diets made using fats of dairy origin showed no such drop in cholesterol. They concluded that either there was something in vegetable oil or the lack of cholesterol in the diet which produced this drop. No mention was made of unsaturated fatty acids as such.<sup>8</sup>

In a later report,<sup>9</sup> Kinsell and Michaels commented that the vegetable fats utilized in their initial studies had very high iodine numbers and were therefore—in contradistinction to the animal fats employed—highly unsaturated. They thereupon studied the cholesterol and phospholipid response to a diet employing a series of vegetable fats of varying degrees of saturation. This investigation rather clearly demonstrated that the fall in cholesterol was related to the content of unsaturated fatty acid in the fat used.

A few months later, a report appeared from South Africa by Bronte-Stewart's group<sup>10</sup> in which diet, serum cholesterol levels, and incidence of coronary disease were compared for three populations in Cape Town. Socio-economic and other factors, rather neatly separate the Bantu, the European, and the Cape Coloured (an admixture of European, Malay and Hottentot) so that each group has a pattern of living and a diet somewhat different from the others. Beginning at the lowest economic level with the Bantu, the diet was found to be rich in carbohydrate, but low in fat, protein and many vitamins. Fat accounted for only about 17% of the calories. The Cape Coloured group averaged about 25% of the diet calories as fat, and the European diet was richest of all in this respect, with fat comprising about 35% of the caloric intake. In addition, the amount of animal (as compared to vegetable) fat increased as the economic scale ascended. The levels of total serum cholesterol and especially the  $\beta$ -lipoprotein fraction rose as fat intake increased. As the death rate due to coronary disease was over twice as high in the Europeans as in the Coloureds of Cape Town, and very rare among the Bantu, this was taken as

evidence that a rise in fat intake meant elevation of blood cholesterol levels and an increase in atherogenesis.

The possible role of vegetable oils in reduction of serum cholesterol levels gained further impetus with the studies of Best and Duncan. In 1956, they published their studies of the effects of  $\beta$ -sitosterol (the chief sterol of tall and cottonseed oils) on the serum cholesterol level in six patients with myxedema.<sup>11</sup> Using a total daily dosage of 20 to 25 grams, and allowing the patients a freely chosen diet, they were able to demonstrate a mean reduction in serum cholesterol levels of 20.1%. In an earlier study utilizing ten euthyroid but hypercholesterolemic patients, a mean fall of 15.6% was observed.<sup>12</sup> These reports were followed by another<sup>13</sup> in which the same authors induced a fall in cholesterol levels ranging from less than ten to more than forty-five percent. The mean depression in cholesterol for this group was approximately 18%. The work of Hernandez et al.<sup>14</sup> would suggest that  $\beta$ -sitosterol acts at the intestinal absorption level by interfering with the esterification of ingested cholesterol in passing from the intestinal lumen into the lymph.

By now what had originally appeared as a simple observation regarding vegetable oil intake and serum cholesterol levels rapidly began to gain complexity. Ahrens et al.<sup>15</sup> reported the efficacy of corn oil in lowering cholesterol levels, and like Kinsell in 1955, felt this was an expression of the unsaturated qualities of the component fatty acids. Corn oil is comparatively rich in linoleic acid, which in addition to being unsaturated, is also distinguished by being one of the "essential" (for rats) fatty acids. Bronte-Stewart et al.<sup>16</sup> and others<sup>17</sup> then considered the possibility that a deficiency of linoleic acid might give rise to a hypercholesterolemia which was reversed by supplying this missing item in the administered corn oil. Keys, Anderson, and Grande<sup>18</sup> investigated these hypotheses by studying the effects of several oils on the cholesterol and lipoprotein levels of 26 men. These subjects received 100 gm. per day of corn oil, sunflower seed oil, sardine oil, or butter fat.

Sunflower seed oil has a very high content of linoleic acid, and sardine oil, while highly unsaturated, contains very little linoleic acid. The 100 gm. butter fat diet was used as the control, and during the control period, the mean cholesterol level was 216.9 mg. %. When changed to corn oil, the mean cholesterol level had an average drop of 45.1 mg. % in one group, and 60 mg. % in a second group. The former group had a smaller (35.8 mg. %) drop when sunflower seed oil was used instead of butter. The latter group, when changed to sardine oil, showed a mean drop of 39.8 mg. %. Both sunflower seed oil and sardine oil, then, failed to induce as large a fall in serum cholesterol as did corn oil. The authors were thus led to the belief that the decrement of serum cholesterol in their subjects depended on factors beyond the degree of unsaturation of the fatty acids employed or the content of essential fatty acid in the diet.

As the original work of Kinsell's group had utilized natural sources of unsaturated fatty acids in the form of vegetable oil, the question arose as to whether the active ingredients might be sterols or phospholipids present in the oil. Consequently they reappraised the problem using a synthetic triglyceride composed of oleic acid 74%, palmitic acid 19%, stearic acid 5%, and linoleic acid 2%.<sup>19</sup> Sufficient amounts of this product were incorporated into the feeding formula to provide 2 gm. of linoleic acid per day. A prompt drop in serum cholesterol occurred, and when the diet was supplemented with as much as 10 gm. of cholesterol, only a slight rise in serum cholesterol occurred. They concluded then, that it was the unsaturated acid per se that was responsible for the drop in serum lipid.

Tobian and Tuna<sup>20</sup> studied the effects of corn oil on a group of 23 patients of whom 15 had had myocardial infarctions and 18 had angina. Eighteen of the subjects tried to reduce the saturated fatty acid and to increase the linoleic acid content of their diet as much as possible, but to still eat meat twice a day. The other five subjects ate much as they pleased, but all 23 took from one to one and one-half ounces of corn oil before each meal.

On this program, 16 of the 23 had a drop in serum cholesterol of at least 15%. Even though five of these 16 patients had been on a restricted fat diet prior to the study period, their cholesterol levels fell with the corn oil intake. The mean pre-treatment cholesterol level of these 16 patients was 271 mg. %. Six others had drops ranging from nine to fourteen percent. One subject had no change. Two subjects were given 4 gm. of  $\beta$ -sitosterol with each meal for six weeks after the cholesterol level had fallen with the corn oil treatment. No additional lowering of cholesterol occurred.

Ahrens et al.<sup>21</sup> conducted a rather elaborate investigation of the effects of a number of animal and vegetable fats on the serum lipid levels of forty patients having hypercholesterolemia, hyperlipemia, or normocholesterolemic patients with arteriosclerotic heart disease. During one phase of the study, patients were given corn oil and coconut oil in alternate periods lasting several weeks. Total and free cholesterol, phospholipids, and serum triglycerides fell when corn oil was first given, and all but the triglycerides rose when coconut oil was substituted. In another phase, corn and cottonseed oil hydrogenated to varying degrees of saturation were given to three patients. One subject had a response in serum lipids that correlated very well with the degree of saturation of the oil ingested. A second subject had only a minimal response, and the third showed no change. Another portion of the study attempted to determine what effects the length of the carbon chain of the fatty acids might have on serum lipid levels. This most interesting aspect, while suggesting that the shorter chain acids might produce the greatest elevation of lipid, was very inconclusive. Support for this concept, however, may be derived from the work of Beveridge,<sup>22</sup> who obtained various molecularly distilled fractions of butterfat, and found that the most volatile fraction, containing the short chain fatty acids, had the greatest cholesterol-raising properties.

Beveridge's study involved a comparison of several fats. Thirty-seven healthy male subjects were initially given a synthetic diet of skim milk powder, cellulflour, vitamins



and corn oil, which provided 16.9, 58.5, and 24.6 per cent of the calories as protein, fat and carbohydrate, respectively. With the corn oil, there was a 32% mean decrease in plasma cholesterol levels after eight days ( $p < .01$ ). After this initial drop had occurred, the group was divided. Some continued on corn oil, but showed only slight additional reduction of cholesterol. Others were given equicaloric amounts of beef dripping, chicken fat, lard, or butter instead of the corn oil, and in each case, the cholesterol levels rose above the level induced in the corn oil period. With beef dripping, the increase was 11.7%, 12.7% with chicken fat, 15.4% with lard, and 28.8% with butter. Differences were statistically significant for the lard and butter groups ( $p < .01$ ). Forty-nine subjects then consumed a "fat-free" diet (carbohydrate 82.4%, protein 16.9%, fat 0.7%) for eight days. The mean cholesterol drop was 22.2%. After division of the group, those remaining on this diet had little or no further cholesterol change. Some subjects were then given either 20 or 60 percent of their calories as butterfat, and had a rise in cholesterol level of 6.6 and 21.7 percent respectively. The third group received either 20 or 60 percent of their calories as corn oil, and showed a further drop in cholesterol of 6.9 and 16.2 percent respectively. This was taken as evidence that there is some specific factor in corn oil which actively depresses cholesterol levels.

The translation of these investigative findings into clinical practice seemingly imposes requirements which are often either overlooked, or which are rejected by the patient. It will be noted that most of the developmental studies used relatively large quantities of oil, generally in the region of 100 grams per day. Secondly, the entire fat content of the diet was often rearranged to a pattern very remote from that of the usual American diet.

When, for example, Perkins et al.<sup>23</sup> gave a safflower oil emulsion to a group of 24 healthy medical students, rather than obtaining a drop in the cholesterol level, they were instead confronted by a small increase. These subjects followed their usual diet containing about 109 grams of fat, and in addition, in-

gested something less than 50 cc. of safflower oil daily.

Shapiro, Estes, and Hilderman<sup>24</sup> studied six healthy male medical interns over a five week period on a standard diet which retained a constant caloric content, but in which the fat content was manipulated. At the end of the first week, when the diet contained 100 grams of animal fat, the mean serum cholesterol was 222 mg. %. After two more weeks during which 70 grams of the animal fat was replaced by an equal amount of corn oil, the mean cholesterol level had dropped to 158 mg. %. For the final two weeks, the subjects reverted to their original diet containing 100 grams of animal fat, but in addition, ingested 70 grams of corn oil per day. On this program the mean serum cholesterol rose to 190.7 mg. %. It can thus be seen that merely supplementing a diet with corn oil, but failing to readjust the total fat intake will have little beneficial effect on serum cholesterol levels. For a man with a "normal" blood cholesterol level, Keys et al.<sup>25</sup> estimate that removing one ounce of butterfat from his diet would be expected to produce about three times the fall in cholesterol as would addition of one ounce of sunflower seed oil.

Albanese<sup>26</sup> and his group studied patients in a convalescent hospital and residents in a home for elderly women. These subjects ate their usual diets, but in addition received one tablespoonful of a soybean oil emulsion thrice daily. This latter supplied about 13 grams of unsaturated fatty acids each day, and at this dose level, they were unable to demonstrate any consistent reduction in cholesterol levels.

Engelberg,<sup>27</sup> in a study of 12 patients who had been on a reduced fat (40-50 grams) diet for several years, had his subjects add from 15-30 cc. of corn oil to their diets each day for periods ranging from three to nine months. Cholesterol and low density lipoproteins were measured prior to adding the corn oil and at intervals thereafter. One subject was found to have a drop in cholesterol after the corn oil, but there was no concomitant fall in the lipoproteins. Nine subjects had no significant change in their



cholesterol, and in the case of one subject, both the cholesterol and  $\beta$ -lipoproteins rose to the control levels that had preceded the low fat diet.

Kyriakopoulos, Mock, and Hammarsten<sup>28</sup> studied the effects of three agents intended for the reduction of blood cholesterol. Nine male subjects with elevated blood cholesterol levels were alternately given each of the three agents, a non-nutritive placebo, and a saturated (coconut) oil preparation for periods of one month each. One agent was a soybean oil emulsion containing vitamins B<sub>6</sub> and B<sub>12</sub> and providing about 10 cc. of unsaturated fatty acid per day; the second was a mixture of betaine, sorbitol, and vitamins B<sub>6</sub> and B<sub>12</sub>; and the third agent was a mixture of the first two. All subjects ate similar diets. Determinations of blood lipids were made at weekly intervals, and the authors were unable to find a significant difference in the mean values for cholesterol, phospholipids, or lipoproteins between any period when one of the agents was given, and when the subject ingested the placebo, the saturated fatty acid preparation, or the control period.

It will be noted that these failures to induce a reduction in cholesterol with modest doses of vegetable oils are at variance with the report of Kinsell<sup>18</sup> cited earlier, in which a daily dose of only two grams of linoleic acid produced a marked decrease in the serum cholesterol. This report has been greeted with some misgivings in other quarters.<sup>29</sup> In a later report,<sup>30</sup> Kinsell et al. suggested 10-20 percent of the caloric intake as being the probably required amount of essential fatty acid for a healthy adult, and a larger quantity for those with vascular disorders.

While there appears, then, to be no general agreement as to the nature of the mechanism by which unsaturated fats lower cholesterol, or even the amounts necessary to do this, many products containing these and other "lipotropic factors" have been introduced into the market.

While awaiting clarification of these issues, it is perhaps well to recall that no one has yet proven that the reduction of a pa-

tient's serum cholesterol will cause his arteriosclerosis to regress or will prevent future coronary occlusions.

## REFERENCES

1. Bello, Francis: The Murderous Riddle of Coronary Disease. *Fortune* 18: 142 (September) 1958.
2. Lindsay, Stuart, and Chaikoff, I. L.: Arteriosclerosis in the Baboon. *A.M.A. Arch. Path.* 63: 460-471 (May) 1957.
3. Keys, Ancel: Prediction and Possible Prevention of Coronary Disease. *Am. J. Pub. Health* 43: 1399-1407 (November) 1953.
4. Yerushalmy, J. and Hilleboe, Herman: Fat in the Diet and Mortality From Heart Disease. *New York J. Med.* 57: 2343-2354 (July 15) 1957.
5. Yudkin, John: Diet and Coronary Thrombosis. Hypothesis and Fact. *Lancet* 2: 155-162 (July 27) 1957.
6. Gofman, J. W.: Blood Lipoproteins and Atherosclerosis. *J. Clin. Invest.* 29: 815-816 (June) 1950.
7. Gofman, J. W.: Serum Lipoproteins and the Evaluation of Atherosclerosis. *Ann. New York Acad. Sc.* 64: 590-595, 1956.
8. Kinsell, L. W., Partridge, J., Boling, L., Margen, S., and Michaels, G.: Dietary Modification of Serum Cholesterol and Phospholipids Levels. *J. Clin. Endocrinol.* 12: 909-913 (July) 1952.
9. Kinsell, L. W. and Michaels, G. D.: Hormonal-Nutritional-Lipid Relationships. *Fed. Proc.* 14: 661-666 (June) 1955.
10. Bronte-Stewart, B., Keys, A., and Brock, J. F.: Serum Cholesterol, Diet, and Coronary Heart-Disease. An Inter-Racial Survey in the Cape Peninsula. *Lancet* 2: 1103-1108 (Nov. 26) 1955.
11. Best, M. M. and Duncan, C. H.: Effects of  $\beta$ -Sitosterol on the Cholesterol Concentration in Serum and Liver in Hypothyroidism. *Circulation* 14: 344-348 (Sept.) 1956.
12. Duncan, C. H. and Best, M. M.: Effects of Sitosterol on Serum Lipids in Hypercholesterolemic Subjects. *J. Clin. Invest.* 34: 930-931 (June) 1955.
13. Best, M. M. and Duncan, C. H.: Modification of Abnormal Serum Lipid Patterns in Atherosclerosis by Administration of  $\beta$ -Sitosterol. *Ann. Int. Med.* 45: 614-622 (Oct.) 1956.
14. Hernandez, H. H., Peterson, D. W., Chaikoff, I. L., and Dauben, W. G.: Absorption of Cholesterol -4 -C<sup>14</sup> in Rats Fed Mixed Soybean Sterols and B-Sitosterol. *Proc. Soc. Exper. Biol. & Med.* 83: 498-499 (July) 1953.
15. Ahrens, E. H., Jr., Tsaltas, T. T., Hirsch, Jules, and Insull, Wm. Jr.: Effects of Dietary Fats on the Serum Lipids of Human Subjects. *J. Clin. Invest.* 34: 918 (June) 1955.
16. Bronte-Stewart, B., Antonis, A., Eales, L., and Brock, J. F.: Effects of Feeding Different Fats on Serum Cholesterol Level. *Lancet* 1: 521-526 (Apr. 28) 1956.
17. Sinclair, H. M.: Deficiency of Essential Fatty Acids and Atherosclerosis, Etcetera. *Lancet* 1: 381-383 (Apr. 7) 1956.
18. Keys, A., Anderson, J. T., and Grande, F.: "Essential" Fatty Acids, Degree of Unsaturation, and Effect of Corn (Maize) Oil on the Serum Cholesterol Level in Man. *Lancet* 1: 66-68 (Jan. 12) 1957.
19. Kinsell, L. W., Friskey, R. W., Michaels, G. D., and Brown, F. R.: Effect of a Synthetic Triglyceride on Lipid Metabolism. *Am. J. Clin. Nutrition* 4: 285-286 (May-June) 1956.
20. Tobian, Louis and Tuna, Naip: The Efficacy of Corn Oil in Lowering the Serum Cholesterol of Patients with Coronary Atherosclerosis. *Am. J. M. Sc.* 235: 133-137 (Feb.) 1958.
21. Ahrens, E. H., Jr., Hirsch, Jules, Insull, Wm. Jr., Tsaltas, T. T., Blomstrand, R., and Peterson, M. L.: The Influence of Dietary Fats on Serum-Lipid Levels in Man. *Lancet* 1: 943-953 (May 11) 1957.
22. Beveridge, J. M. R.: Role of Unsaturated Fat in Adult Nutrition. *Am. J. Pub. Health* 47: 1370-1380 (Nov.) 1957.
23. Perkins, Richard, Wright, I. S., and Gatje, Barbara: Effect of Safflower Oil Emulsion on Serum Cholesterol Levels in Young Adult Males. *J. A. M. A.* 166: 2132-2135 (Apr. 26) 1958.
24. Shapiro, Wm., Estes, E. H. Jr., and Hilderman, Helen L.: The Effects of Corn Oil on Serum Lipids in Normal Active Subjects. *Am. J. Med.* 23: 898-909 (Dec.) 1957.

25. Keys, Ancel, Anderson, J. T., and Grande, Francisco: Serum-Cholesterol Response to Dietary Fat. *Lancet* 1: 787 (Apr. 13) 1957.

26. Abanese, A. A., Higgons, R. A., Orto, L. A. and Mastri, A. R.: Some Factors Influencing Total Blood Cholesterol Levels of Adults. *Geriatrics* 13: 218-226 (April) 1958.

27. Engelberg, H.: Studies of Serum Cholesterol and Low-Density Lipoprotein Levels Previously Lowered by a Reduced Fat Intake, After the Addition of Corn Oil to the Diet. *J. Chron. Dis.* 6: 229-233 (Sept.) 1957.

28. Kyriakopoulos, A. A., Mock, D. C., and Hammarsten, J. F.: Blood Lipid Levels Following the Administration of Sup-

plementary Unsaturated Fatty Acids. *Clinical Research* Vol. 6: 417-418 (Nov.) 1958.

29. Keys, Ancel, Anderson, J. T., and Grande, Francisco: Fats and Disease. *Lancet* 1: 992-993 (May 11) 1957.

30. Kinsell, L. W., Michaels, G. D., Friskey, R. W., and Splitter, Stanford: Essential Fatty Acids, Lipid Metabolism, and Atherosclerosis. *Lancet* 1: 334-339 (Feb. 15) 1958.

800 N.E. 13th, Oklahoma City, Oklahoma

**TWENTY-SIXTH ANNUAL**

*Washington's Birthday*

*Clinic*

**February 25**

**1959**

**Room 8-E, Out-Patient Clinic Building**  
**University of Oklahoma Medical Center**

**Sponsored by**  
**The Oklahoma City Internists' Association**  
**Office of Postgraduate Education,**  
**University of Oklahoma School of Medicine**

Complete Program Appears on Page 113

# Rotary Power Lawn Mower Injury: Perforation of the Stomach

THOMAS H. HENLEY, M.D.

ROTARY BLADE power lawn mowers were introduced during World War II due to the shortage of steel required in manufacture of reel type mowers. The rotary mowers work better on uneven terrain and will cut heavier growths of grass and weeds than other types of mowers. The cutting bars of the rotary mowers rotate at 2,400 to 3,600 revolutions per minute, and the force of the rotating blades is estimated to be in excess of 10,000 pounds per square inch. An object struck by the blades (nails, rocks, etc.), may attain speeds in excess of 300 feet per second. This equals the speed of many shell fragments and approaches the speed of a bullet.<sup>1</sup> Immediate accidental death from such missiles has been reported on several occasions.<sup>2</sup>

In the period from January, 1955 through December, 1956, a total of 737 cases of power lawn mower injuries were reported in Georgia. This report included the cases of only one-fourth of all practicing physicians in Georgia. Of these injuries 30.4% were due to objects being thrown by a mower blade. A total of 87.9% were from rotary power lawn mowers.<sup>3</sup> No statistics are available for accidents of this description in Oklahoma, but this type of injury is rather commonly seen on active emergency services in hospitals and in private practice. Because of the seriousness of this problem and the type of injury sustained, the following case is reported.

## Case Report

V.L., a 15 year old white boy, entered the University Hospital on September 25, 1958 at 9:10 p.m. with the following history. At

## THE AUTHOR

Thomas H. Henley, M.D., graduated from the University of Oklahoma School of Medicine in 1950.

A former practitioner in Fairview, Oklahoma, Doctor Henley is now a Resident in General Surgery at the University of Oklahoma School of Medicine.

*This paper is from the Department of Surgery, University of Oklahoma Medical Center, Oklahoma City.*

6:00 p.m. on the same day, he was cutting grass with a rotary power mower when the mower struck a metal object and the object struck the patient in the abdomen. He had pain and was taken to his private physician who referred him to the University of Oklahoma Medical Center. He had had no nausea, or vomiting, had voided clear urine and had a normal bowel movement following the injury.

**PHYSICAL EXAMINATION:** The patient was a well developed, well nourished, 15 year old white boy in obvious moderate pain located generally in the abdomen. The patient's chest was clear to auscultation and percussion. His blood pressure was 140/80, pulse 98 per minute, respiration 22 per minute, temperature 100° Fahrenheit rectally. There was a 4 mm. perforation 2 cm. to the right and 3 cm. above the umbilicus. There was generalized abdominal tenderness in all areas but more pronounced in the epigastrium. There was muscle guarding and rebound tenderness in the upper abdomen. Bowel sounds were present but hypoactive. On rectal examination no masses or tenderness were noted. There was no blood on



the palpating finger. X-rays of the abdomen disclosed a metallic structure with the appearance of a nail in the anterior upper abdomen. Laboratory studies on admission were as follows: Complete blood count, hemoglobin 14.1 gm. %, hematocrit 40%, white blood count 29,000 per cubic millimeter with 50% neutrophils, 48% lymphocytes, 2% monocytes, no eosinophils and no basophils. Urinalysis was as follows: Appearance clear yellow, pH 7.0, specific gravity 1.017, protein negative, sugar negative, acetone negative, microscopic examination negative. Following the above studies, he was immediately taken to the operating room and an abdominal exploration was performed through an upper midline incision. A two inch rusty nail was found in the anterior aspect of the body of the stomach near the lesser curvature. The nail had perforated the stomach through and through and was lying in the tract thus formed (see fig. 1). The nail was removed and the two perforations were closed with -000- silk Lembert interrupted sutures. The stomach was found to contain a large quantity of undigested food, even though the patient had vomited copious quantities while a Levine tube was being placed in the stomach prior to operation. A retro-cecal appendix was removed also. Following operation the patient was kept on gastric suction. Ten thousand units of tetanus antitoxin were given after skin testing. The patient was afebrile on the second postoperative day. The gastric suction tube was removed on the second postoperative day. He was discharged on the fifth postoperative day and to date has had a completely uneventful postoperative convalescence.

### Summary and Conclusions

In summary, the problem of power lawn mower injuries is a serious one, and we, as physicians, should do as much as we can to call the public's attention to the dangers of these mowers. Manufacturers of power lawn mowers should develop an awareness of the dangers involved. The habit of clearing the

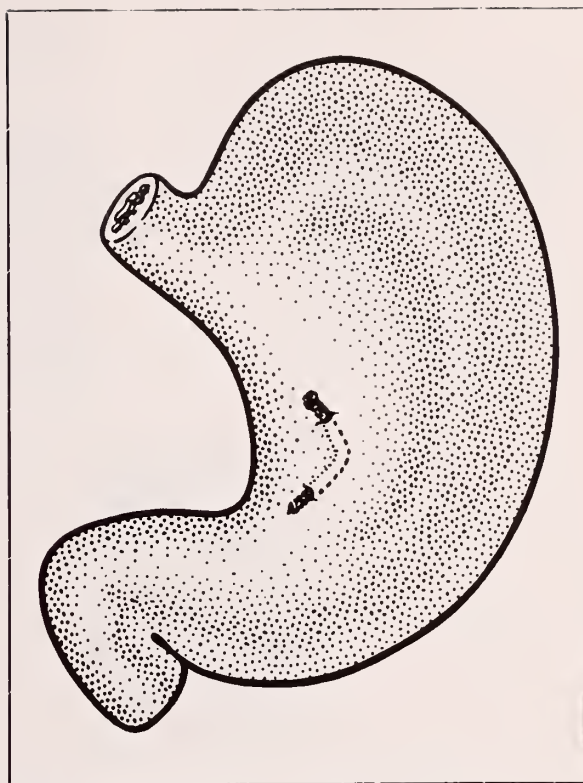


Figure 1. Position of perforation of nail in the stomach propelled by a rotary power lawn mower.

grass from the power mowers while the motor is running is certainly a very dangerous one. These mowers usually have a grass ejection area which comes off at an angle to the line of travel so that if the operator stays directly behind the machine he is not in as much danger. However, a person standing to the side of the machine would be in danger as well as the operator himself if he turns a corner and gets in line with the ejection pattern. Lawns to be mowed should be cleared of rocks, wire, etc., before they are mowed. Further statistical reports on power lawn mower injuries in Oklahoma would be extremely valuable.

### REFERENCES

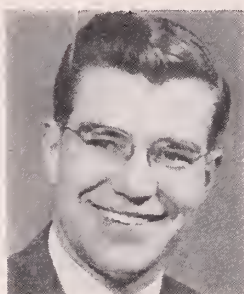
1. White, W. L.: The Menace of the Rotary Lawn Mower, *Am. J. Surg.* 93: 674, April, 1957.
2. Miller, G. R.: Missile Type Injuries from Rotary Lawn Mowers, *S. Med. J.*, 50: 982, Aug., 1957.
3. McClure, J. N., Steed, H. C., Jr., Alden, R. N., Terrell, J. C.: Power Lawn Mower Injuries in Georgia, 1955 and 1956, *J. of Med. Assoc. of Ga.* 46: 555, Dec., 1957.

801 N.E. 13th, Oklahoma City, Oklahoma

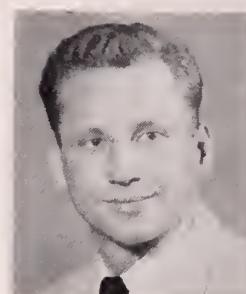
## FACULTY NEWS



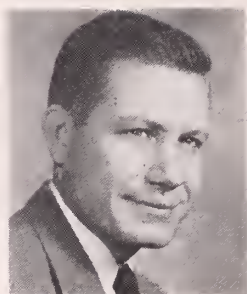
SMITH



REECE



SHONS



MOODY



BIEGELEISEN

### **Five Faculty Appointments Made**

Recent appointments to the faculty of the University of Oklahoma School of Medicine include one in the department of medicine, two in dental surgery, one in surgery and one visiting lecturer in pathology.

The new staff members are: Carl Walter Smith Jr., M.D., instructor in medicine; C. Herman Reece, D.D.S., and Kenneth William Shons, D.D.S., clinical assistants in surgery (dental); H. Carter Moody, M.D., clinical assistant in surgery; and Joseph Z. Biegel-eisen Jr., Ph.D., visiting lecturer in pathology.

Doctor Smith is a 1953 graduate of the University of Oklahoma Medical School. He interned at Barnes hospital, St. Louis, and was a resident in medicine there from 1954 to 1955. He then completed a two-year residency in medicine at University hospital, followed by a one-year fellowship in endocrinology and radioisotopes.

Both Doctor Reece and Doctor Shons earned their D.D.S. degrees at the University of Kansas City Dental School. Doctor Reece interned and served an oral surgery

residency at Kansas City general hospital, taking further training at University hospital last year.

Doctor Shons also holds an M.S.D. from the University of Kansas City Dental School. He interned at University hospital and completed a residency in oral and maxillofacial surgery at John Sealy hospital, Galveston, Texas, last year.

Doctor Moody is another graduate of the University of Oklahoma School of Medicine. After interning at Mercy hospital, he served a residency in surgery at Oklahoma City Veterans hospital from 1953 to 1955 and at University hospital, 1955-1957.

The new visiting lecturer in pathology, Doctor Biegel-eisen, is principal virologist, in charge of the virology laboratory of the State Department of Health. He earned an M.S. at the University of Louisville School of Medicine; his Ph.D., at the University of Oklahoma medical school. Doctor Biegel-eisen is conducting research on the herpes simplex virus in the fetuses of rabbits.

### Biophysical Principles Of Electrocardiography

ROBERT H. BAYLEY\*

New York, Paul B. Hoeber, Inc., 1958



Doctor Bayley's years of devotion to the teaching of electrocardiography oriented to basic mechanisms of cardiac electrophysiology are brought to general view by the present textbook. To the many medical students, housestaff, and practitioners

who have been privileged to come in contact with Doctor Bayley's inspiring presence this book is a long awaited event.

Initial scanning of the volume will undoubtedly leave the casual electrocardiographer with a distinct sense of inferiority. However, even cursory examination of the text should impress the serious student with the enormous potential of this progressive method of electrocardiographic analysis. Thus the physician is enabled to extend his horizons beyond the oftentimes confusing and inadequate memorizing of electrocardiographic patterns and to extend his comprehension to the multiplicity of leads that are now available.

Development of the subject is lucid and orderly beginning with the basic concepts

of electromotive forces, then describing the spread of excitation in a single cardiac fiber, followed by presentation of the heart as a volume conductor and the three dimensional analysis of vector forces.

The spread of cardiac excitation is painstakingly followed both in the normal heart and in the presence of bundle branch block. Considerable attention is devoted to the significance of the delayed intrinsicoid deflection as a means of detecting ventricular hypertrophy and peri-infarction block. Precision in the diagnosis and mapping of areas of myocardial ischemia and infarction are brought into focus.

The same fundamental approach is directed toward an understanding of T-Wave and RS-T junction changes.

A chapter on pertinent mathematical derivations is included for those who are prepared to savor Doctor Bayley's development of the subject to the fullest.

A companion volume dealing with more extensive clinical applications of these basic principles to electrocardiography is promised and will undoubtedly add greatly to the comprehensiveness of the work.

This book is truly a classic not only in the field of electrocardiography but as an exercise in the development of fundamental principles to their finite and very practical application.

\*Professor of Medicine, University of Oklahoma School of Medicine.

### Are You Taking Advantage Of

## THE FACULTY HOUSE

Symbolizing the unity that exists between all disciplines of Oklahoma Medicine, membership in the Faculty House offers excellent facilities for the social and business activities of faculty members, O.U. Alumni and members of the OSMA.

**Special rates for out-of-county members**

**Call RE 6-3767 or write Mr. Havens for Membership Information**

**Association of**

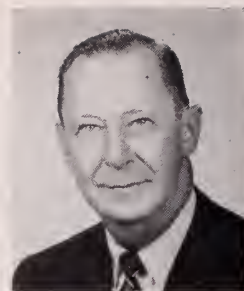
**The University of Oklahoma Medical Faculty, Inc.**

**601 N.E. 14th Street**

**Oklahoma City 4, Oklahoma**



# PRESIDENT'S LETTER



There are very few state medical journals that can compare in quality to that of the Oklahoma State Medical Association. This is not just by accident but due to the exceptional talents of our Editor-in-Chief, Doctor Ben Nicholson and his equally talented staff. Only dedicated people, as these persons are, would undertake a job of such magnitude where there is so little reward.

A few facts which are worthy of note—In 1955 *The Journal* averaged seventy-five pages per issue; this year, one hundred and twenty pages per issue. Circulation now exceeds 2,200 copies each month. Thirty-two of these are sent to nineteen foreign countries, including Russia. Two hundred and seventy eight are mailed to out-of-state medical associations, health departments, medical school libraries, private subscribers, etc. All at a cost of about \$35,000 per year.

Last August, at the Regional State Medical Conference in Austin, our *Journal* was rated superior. Dean DeWitt Reddick, Journalism consultant at the meeting, had this to say: "The Oklahoma *Journal* is well-planned, neatly prepared, and is much more readable than most of the medical publications which I have seen."

Even though the *Journal* has been repeatedly praised by the critics, our editorial staff continues to strive for improvement, so as to better compete with other medical publications for your reading time. The editor would like to have your comments and your contributions. And if you have not been a regular reader, just read two issues from cover to cover—you'll be glad you did.

A large, stylized handwritten signature in dark ink, reading "E. C. Mohler, M.D." with a long, sweeping flourish extending to the right.

E. C. MOHLER, M.D.  
President



when psychic  
symptoms  
distort the picture

**Dartal helps the patient reintegrate his mental processes**

In everyday office practice as well as under hospital conditions Dartal is consistent in its effects as few tranquilizers are.

**Dartal promotes emotional balance**

Dartal effectively decreases or relieves emotional hyperactivity and psychomotor excitement.

**Dartal is unusually safe**

At a recent symposium, leading hepatologists\* concluded that Dartal is not icterogenic or hepatotoxic.

**Dartal is effective at low dosage**

One 2-mg. tablet q.i.d. or one 5-mg. tablet t.i.d. in neuroses; one 10-mg. tablet t.i.d. in psychoses.

*a superior psychochemical  
for the management of both major and  
minor emotional disturbances*

**Dartal<sup>®</sup>**  
dihydrochloride      brand of thiopropazate dihydrochloride

\*A Symposium on the Pharmacologic Effects of Dartal on the Liver, Chicago, Searle Research Laboratories, Feb. 7, 1958.

**SEARLE**

## The Oklahoma Art Center: An Invitation to the Enjoyment of Learning

**F**EW GROUPS OF PEOPLE ever have the privilege of opening a center of art for the uses of the community. I am honored to be allowed to share in your celebration. It is a pleasure to be among you and to become acquainted with your vigorous city and with many of the persons whose imagination and energy keep the whole area moving ahead. Because you have ideas and—more important—because you work them out, the entire community enjoys a surging life. Everyone also learns to think of himself in a certain way—he learns to see himself as standing for constructive moves and as ready to spend time and money on them. It is a pleasure, a privilege, an honor to stand here among men and women who have actually brought an Art Center into being.

Not many groups, as I remarked, ever

**JAMES STREET FULTON, Ph.D.**

Doctor Fulton is Professor and Chairman of the Department of Philosophy, Rice Institute and Master of Will Rice College.

have a chance to build such a center; but where in the world is this more likely to happen than in the Southwest? Other parts of the country—not to mention the old world—have had a head start; but this part of the country still walks with a springy step, zestful and confident. It never looks back nostalgically to a golden past, because it feels certain of a future as golden as hard work can make it. Hard work has already paid off handsomely; the job of getting established in a raw land is over, and the people

**THIS ARTICLE**, a reprint of an address by Doctor Fulton, was first presented to the Oklahoma City Chamber of Commerce on the occasion of the opening of the new Oklahoma Art Center. Since Doctor Fulton's remarks focus much attention on man's need to reflect upon his history and accomplishments, the address is set in print as a reminder to Oklahoma physicians that they are living in a state that is rich for its years in cultural environment.

A few illustrations of Oklahoma institutions have been inserted in the text of Doctor Fulton's address.



all over the Southwest burst with energy and enthusiasm quite equal to any demand, eager to attempt everything at once. The Southwest builds huge new industries, seemingly overnight, and then inundates the fields with new cities to house the teeming population, and raises taller skyscrapers to provide for expanding commerce. All this is far too obvious to overlook.

Less conspicuous to the casual glance, though no less important to the life of the area, is the increasing, deliberate cultivation of all arts of Western culture, including science and engineering. With resources apparently equal to any demand, we tackle these tasks also. The exciting atmosphere of productive effort forms our natural environment. We enjoy making and building things and keeping busy; we welcome the changes that our own efforts bring about. Now, already it is possible to observe the more sophisticated and recondite achievements of science, engineering, and fine art being brought about simply as extensions of the habit of productivity.

But even in the Southwest it is not humanly possible to keep incessantly busy. Inevitably we must stop to rest, and these moments of inactivity give us time to wonder what it is all about: What does our productivity amount to? What do the things we make really mean in the long run? Questions like these may shake our self-confidence, so that we need to be reassured about the importance of our works. We have to have the meaning of our daily efforts set out before us for reflection. It is a curiously fortunate provision of nature that this meaning is superbly displayed to us by the very objects we have made. There they are out there, stable and public, for us to consider at our leisure. Whenever we feel the profoundly human need to examine our lives objectively, the works of our hands and minds stand ready to help. The Art Center will house such objects—ultimately for the sake of our self-knowledge. This is its most vital service to the community. It will assemble and present for our thoughtful enjoyment works of every kind that effectively reveal ourselves to ourselves.

---

Let me see if I can put this idea in a

slightly different way. I want it to be clearly understood, since it is the substance of all my remarks on this occasion. The point is this: One of the strangest peculiarities of the human being is that, no matter how busy he keeps, he is never satisfied until he knows—or thinks he knows—what he is really up to. We are all human and confirm this in our own experience. There are always times when we wonder about ourselves. Then we may in our need seek out the works of men's minds and hands for help in discovering what we most painfully seek and most passionately hope to find. Each thing that we make, whatever it may be, enshrines a purpose and mirrors back to us our humanity—with its failures and its glories—if only we take the trouble to look and train our eyes to see. The Art Center is thus an educational institution, designed to make it easy to look and pleasant to cultivate the art of seeing with the mind. Its open door is an open invitation: "Come inside, you passer-by, and enjoy the things that men have made. You will learn better-informed respect for human powers; but you will also learn humility, which is the beginning of wisdom, for you will discover a fresh awareness of the enormous lethargy that leaves our powers mostly dormant and frequently futile. You will learn to see men's greatness—and sense his weakness; you will learn to joy in his achievements—and grieve at his failure before a surmise of perfection."

The Art Center, therefore, is an invitation to learning. It offers more sensitive understanding in return for a few moments of our leisure. The word "leisure," by the way, calls to mind the fact that "school" comes from the ancient Greek for "leisure." A museum is indeed a school, one of the great institutions by which civilized excellence is preserved and transmitted from generation to generation. The Art Center keeps alive the Greek insight that the proper use of leisure is the enjoyment of learning, the active cultivation of perception, emotion, and understanding.

When Dean Harlow informed me that the Art Center is ultimately to house displays of fine art and also of science and industry, I was at first somewhat surprised; but the more I wondered about it, the less I won-

dered at it. Different as they are, the fine arts, the sciences, and the arts of engineering and industry are all alike works of human creativity, and together they project a single ultimate image of man. Together they form a truer mirror of human need and satisfaction than any one of them by itself. By grouping them all together, the Art Center may enable us to see with unaccustomed clarity how each vital human activity penetrates and is penetrated by all the others.

Some in the audience may think that I exaggerate the unity of art, science, and technology. Certainly, it seems plain enough that the world of industry as such has little direct concern for fine arts and scientific experiment, save incidentally as tools or conveniences. The world of science, for its part, takes pride in its scrupulous indifference to judgments of value and utility. And the fine arts, no less specialized, are devoted to the ultimate riches of the human spirit and tend to find the scientific concentration on quantitative relations boring, if not trivial. Like science, the arts tend to hold considerations of mere utility in low esteem. One of my scientist friends actually boasts of his insensitivity to aesthetic values. I have my own opinion of the accuracy of his claim; but that at least is how he talks. On the other side, I have a sculptor friend who distrusts the scientific approach, so cold and blunt, to the world. Then there is the practical man, at his worst perhaps a Babbitt such as once afforded the whole world its favorite symbol of American civilization. He was supposed a stranger to refined taste of every kind. And yet the work and the wealth of practical men have promoted every forward step toward a mature cultural life.

These extreme instances I do not put forward as typical or even common, but only as a warning against overestimating the degree of actual harmony among these specializations.

It would also be unwise, on the other hand, to exaggerate the conflicts among science, art, and technology. They are activities in which we all share in some (perhaps slight) degree. To isolate each of them from the others would be like carving our essential humanity into three unrelated parts; but

then it would bear hardly any resemblance to the life we live from hour to hour. Life does not come in fixed compartments; it flows and mingles all its currents together. Science, art, and industry constantly interplay in our lives and transform one another fruitfully—when they conflict hardly less than when they agree. This is not really surprising. Is it not exactly what we should expect, seeing that a man has but one nature to fulfill? By displaying works of science, art, and industry, the Art Center symbolizes the many-sided unity of human nature.

That unity crystalizes about a central passion and a perpetual marvel. The passion is our relentless yearning for greater aliveness, awakeness, or awareness. The marvel is the power of human creativity, or creative imagination. And these two, the passion and the power, are opposite sides of the same basic fact. As mutually dependent as concavity and convexity, they together constitute the essential rationality that sets man apart from other animals. Man by nature yearns to be aware—of what he is, who he is, where he is, and how he is, and of the whole great truth. Such is the passion that makes a man manly, that rouses him to every last exertion in the face of all odds.

The passion for aliveness itself owes its possibility to the marvel of creativity; for the passion includes a question—how am I? or, what is it?—but a question arises only from a vision that looks beyond present fact. It is also true that every advance in knowledge and every artistic or industrial fabrication begins with an act of imagination. What appears on one side as the passion for awakeness, or knowledge, is seen from the other side as that urge to expression that drives the artist beyond his physical strength or harries the industrialist to prodigies of production or keeps the scientist everlastingly at his investigations.

Human creativity, of course, is not absolute any more than human awareness is complete. Though our creativity may be the fire of spirit that betokens divine kinship, it has no power of action, save through the body, with its extensions into the widest

Continued on page 96



“ . . . the Art Center symbolizes the many-sided unity of human nature”



### **The Oklahoma Art Center**

In 1935, government aid made possible the formation of an art center in Oklahoma City. It was first located in the Commerce Exchange Building and was called the Experimental Art Gallery.

The gallery soon outgrew its one room quarters, and after one interim move, occupied the fifth floor of the newly constructed Municipal Auditorium. In 1937, the first exhibition was shown—thus ending the “experimental” phase of development. A short while later, the name was changed to the Oklahoma Art Center and Oklahoma City was on its way to having a well-organized center of art activity.

In the face of a 1942 financial crisis, the Oklahoma City Junior League volunteered help and, by 1946, the center was operating on a sound basis. This same year, the Beaux Arts Ball was initiated as a fund raising benefit and it has made successful contributions each year since.

Growing pains were again felt and leaders began dreaming of a building to house the activity. Substantial progress was made when Miss Deborah Haines bequeathed \$30,000 in securities and Oklahoma City donated land at the new Fair Park.

The culmination of the dream came in 1957 when Mr. and Mrs. John E. Kirkpatrick offered to construct a \$250,000 home for the Art Center. The circular structure, which was opened on December 5, 1958, is constructed of steel frame covered with a pre-cast panel exterior. An open air, center court, portable lighting system and partition arrangements are unique features of the building which covers approximately 23,000 square feet.



world by any way of sense. Our most primitive awareness would flicker out ignominiously, if the streaming energies of nature did not rouse the body from its pristine lethargy. The impact of the world jolts us awake and reveals a bright panoply of sensuous feeling and sensory qualities, which cover the bare energies of nature with a vesture of intrinsic values. But the primitive emotional and sensory responses of the body to its world would remain vague and fluctuating, were it not for the mind's free constructive activity. Step by step we climb the scale of conscious awakening by turning our immediate sense enjoyment into a symbol of meaning. This stone at hand becomes a tool; this falling apple becomes an analogue of the moon's behavior toward the earth. This painted bison on the cave's ceiling becomes the anxiety of hunger, the thrill of the hunt, the gracious promise of satiety, and the pious gratitude to the animal for the boon of life that his death grants. Thus technology, science, art add their special meanings to our direct encounter with events; they help us stretch awareness beyond present sensations by making them symbols of meanings nowhere independently established in the merely physical order. Creativity and receptivity go together, imagination and perception; they are paired aspects of the central activity of a human being.

Scientific discovery aptly illustrates interdependence of invention and discovery. We say scientists make discoveries rather than inventions, because we feel that a scientist ought not to invent laws, for we regard the laws as facts rather than fictions. Yet the history of science is one prolonged illustration of the dependence of discovery upon invention. Perhaps the first genuinely scientific theory was the Pythagorean interpretation of musical harmonies in terms of ratios of small whole numbers; but nobody ever heard two numbers sound an octave or a musical instrument sound numbers. Copernicus had no empirical data not available equally to his Ptolemaic contemporaries; the heliocentric system does not lie engraved on the face of the recorded observations. The historical truth is that the Copernican picture of the solar system did not win out for about a century and a half, there having

been in all that time no conclusive way of establishing its superiority over the older system. Victory came only after Newton succeeded in working out the mechanics of the heavens. Or take radio waves: Clerk Maxwell invented them, before Herz discovered them. Non-Euclidean geometry was worked out years before Einstein devised his astonishing non-Euclidean physics of relativity. The very name *x-ray* commemorates the blank bewilderment of an investigator who had discovered a wholly unprecedented phenomenon; the means of understanding it had yet to be created, for the facts did not carry explanations around with them.

Each successful new explanation is also a new discovery, for it grants new insight into natural relations, which continuing experiment may confirm or correct. Experiment keeps scientific imagination sane and relevant. Discovery keeps the objects of the scientific imagination from being merely fictitious.

It would be equally easy to illustrate the mutual dependence of discovery and creation in the fine and practical arts. But I do not wish to divert attention from the main point lest the thread of our argument become lost. The central point has been that the Art Center is an educational institution that transmits the significant achievements of our culture by displaying man's works for man's enjoyment and enlightenment. We then noted that the display of fine art, science, and technology under one roof will be unconventional, to say the least; but we found that it was wise, since all three express the same union of creativity and wonder that lie at the core of human nature. The union was defended with some care, and illustrated with particular reference to natural sciences. Instead of proceeding, systematically, to deal with technology and fine arts in the same way, I return to the main theme and call attention to another striking fact about the Art Center: it will automatically and inevitably convert every display in it into an object of aesthetic appreciation, a quasi-object of fine art. The Art Center is like a giant frame that disconnects the objects in it from their real ties with the workaday

Continued on page 98

" . . . every work of man is a work of art that we may enjoy if we try; each has its human meaning that will reward the effort"



### **Philbrook Art Center**

Tulsa's Philbrook Art Center, with its 23 acres of beautiful grounds, is the former residence of Mr. and Mrs. Waite Phillips, who gave it as an art center in 1938, and gave two buildings as a source of income for maintenance. It is privately administered by the trustees of the Southwestern Art Association, operated for the benefit of all. Membership fees supplement income for programs, classes and varied museum activities.

Since its opening in October, 1939, various gifts and purchases have made its permanent collections outstanding in Oklahoma and have attracted nation-wide attention to its American Indian collections, particularly American Indian paintings. The Clark Field Collection of American Indian Baskets and Pottery is distinguished for its rarity and range, and is on permanent display, as are the Samuel H. Kress Collection of Italian Renaissance paintings and sculpture and the George H. Taber Collection of Chinese jades and decorative arts. It is impossible for all collections to be exhibited at all times or in full, but a selection of 18th and 19th century oil paintings from the Laura A. Clubb collection is always on view, and the Standard Oil Company of New Jersey collection of paintings of the oil industry and other collections are rotated frequently.



world and converts them into enticements to contemplative enjoyment. The industrial displays in the Center will never be required to do industrial work. The scientific displays will not be required to advance science, as ordinary scientific devices may. All these displays will be like works of art designed and built to heighten the joy of looking. They teach that every work of man is a work of art that we may enjoy if we try; each has its human meaning that will reward the effort. Works of science and technology may be displayed for contemplation, but display is a secondary function for them. It is the primary function of works of fine art, for their sole purpose is to concentrate the greatest possible significance into unique, burning moments of experience.

The conclusions to which this line of thought tends is clear: to form an adequate idea of the educational potential of the Art Center we must examine with special care the educational function of fine art. This takes nothing from science and technology. They have valid purposes and indispensable values, but fine art is *made* to be exhibited, and it is made to express the whole gamut of human joy and sorrow. This, and nothing less, satisfies a thoughtful person.

How do the fine arts work to achieve their results? They isolate their objects from the urgencies of immediate action so that the mind may rest in them; and they shape, organize, or compose their works so that they do not fall apart in a mad throng of less and less relevant suggestions. The least requirement of a satisfactory work of art is that its parts shall lead back into one another, and its meanings do the same. The result must be a stable vision of significant existence. The greatest art reveals harmonies that had been hidden; it interweaves themes or materials that otherwise have seemed not importantly connected, until suddenly feeling burns bright with quick insight.

The harmonies of fine art are harmonies of tensions. Could it otherwise be true to life? It may even seek out and increase tensions, but only on condition that they enhance intensity of unified emotion. It puts together maybe worthless pieces until it ob-

tains a fascinating composition. Art transforms its material, and does so in a wholly characteristic way, for its materials (while they may seem to be colors or shapes or tones or other physical things) are really emotions. The work of art unifies the emotions it rouses by first marvelously transfiguring them. It captures that moment of clarity in which contrasting, even ugly, feelings are fused into a single flaming acceptance. Tension remains but is redeemed. Emotions lose their rending evil in the lucidity of discipline. The very greatest art may contain the most shocking dissonances, as did Beethoven's late quartets, but it contains them in such a way as to convert the cry of anguish into a paean of praise. One thinks of El Greco and Rouault in this connection.

By materializing feelings, art searches out human purposes. In this sense it is a critic of values. It leaves no hiding place. It is a critic of values not because they are subjective and it is subjective, but because they are objective and it discovers and it appropriates them. We cannot make a stable value of what is really worthless either in art or in life. An artist cannot create values; he can only use those he finds, and he must obey reality faithfully in order to find them.

Fine art thus can teach new insights. It sharpens our emotions until we learn lessons from them about what it and what is not truly worth while. A man must be abnormally sensitive to succeed as an artist; but he can convey his feelings and teach us dullards how to feel too. Most of us learn in the course of life to dampen our feelings and to treat them as perhaps a little disreputable. On the other hand, everything great comes to us with feeling. Love, after all, is a feeling—even Christian love. Unless we learn to feel in a way appropriate to the realities of the occasion and unless we learn to give ourselves freely in the act of feeling, then we miss the values of the situation and fall short of an essential intuition without which life does not reach full fruition.

With the simplicity of genius, Aeschylus long ago achieved a many-sided truth: "Men

Continued on page 100





## **The Thomas Gilcrease Institute of American History and Art**

The Thomas Gilcrease Institute of American History and Art of Tulsa was founded in 1942 as part of the Thomas Gilcrease Foundation " . . . established to maintain an art gallery, museum and library devoted to the permanent preservation of the artistic, cultural and historical records of the American Indian." The scope of the museum's collection was later broadened to include all the Western Hemisphere.

Included in the collections of the Institute, are paintings by over four hundred American artists of past and present, with special emphasis being placed on the Indian and the story of the development of the western United States. In addition to 4,000 paintings, the collection contains 150 items of sculpture, over 10,000 artifact items and an estimated 65,000 books and documents relating to various phases of American history.

The main museum building is constructed of native sandstone by Indian labor and contains eighteen rooms. It is open to the public 364 days a year.

For many years, the museum was supported by endowments from the founder. It is now the property of the City of Tulsa and is operated by the Tulsa Park Board.

by suffering learn." They long for awakening, but shun suffering. Without it though, they have nothing to report. In order to speak—in words or clay or paint—the artist must feel to the bottom of his inmost being. Holderlin felt the emptiness of ease: "We are without pain, and in our happiness have almost forgotten how to speak." When contented and complacent, man has nothing to say. He does not utter his vision in art, simply because he has none to utter. Without profound feeling that blends into intuition there is nothing that bursts into expression. That is why creative effort, born of deep feeling, may be experienced as pain and suffering. Ribak, the Taos painter, speaks quite casually of his work as his pain. His senses must be raw to the touch of color; but it is not mere color that stings the senses. Thoughtful feeling makes them quiver with meanings beyond mere sensation. If feeling were merely passive, and if thought only reduplicated ready-made fact, then our persistent dissatisfaction with feelings and thoughts would remain incomprehensible. Passivity alone will not account for our anxieties and dreads, nor for our basic passion to be alive to all the possibilities provided by the universe. The merely animal needs of man are not extravagant. It is the insatiable spirit that makes exorbitant demands. The man that lives in the order of ultimate meanings and desires remains unsatisfied. He may flee from his distress to trivial or tawdry substitutes for feeling, or even strive for apathy.

To face great art and live up to it in appreciation is like facing the inexhaustible responsibilities of life. Feelings become raw to every influence; yearning for awareness grows until nothing short of reality itself can assuage it. Neither apathy nor escape will do; the pain needs a truer healing that transfigures it into joyful recognition of ultimate significance. Great art never merely amuses or entertains; the very greatest often moves us too deeply to be called even enjoyable. It consumes us in a fire that gives satisfaction deeper than enjoyment. It never shabbily tricks us into forgetting what cannot be forgotten, our condition; it quickens consciousness of what we always need to remember, our hope.

Great art, therefore, is heartfelt thought made public. It uses materials in order to make inward discovery a public possession. Meanings must clothe themselves in order to become available for fruitful contemplation. When the heartfelt thought is upon a man, he will find some way to utter it. Words or some other forms of expression will take shape around his meanings. Then and only then can even the artist take full possession of his surmise.

The yearning for complete awareness that gives rise to thought and to art bespeaks an immediate and ultimate conviction that we exist within the embrace of a perfect possibility. This yearning is the Platonic "love" that longs for the everlasting possession of the good; or, in its negative guise, it is the ignorance of Socrates, profoundly certain of his distance from full possession of this good. This is the striving of the world towards betterment; this is man's longing for fruition. The heights of philosophy, of poetry, of art, of drama, are scaled in the strange insight that intense suffering is beautiful, and that feeling shapes into something that transfigures pains and passions. All the transformations of art signalize this paradoxical truth: spiritually, transfiguration is possible; evil can always somehow be made good. This is a lesson of morality; it is a lesson of art; it is a lesson also of religion.

What, then, is feeling? What does feeling mean? Our answer, though sketchy, is clear: Feeling is one revelation of the truth, and so it helps to educate mankind. Art promotes this education. It provides a kind of artificial memory, which creates and then preserves conditions favorable to heartfelt enlightenment.

The supreme achievement of art, therefore, is by transmuting suffering, to awaken us to the prevalence of joy and beauty in the world. Art trains our perception by holding before us images that cunningly lure us to look, to listen, to hearken—to contemplate; it teaches us to yield our imagination to the claims of a high vision. It teaches us the habit of seeing the good that overcomes evil and the beauty in every crevice of vast nature. There is nothing so sordid that it

Continued on page 121



# Medical News

## Conference On Handicapped Children Scheduled For March

Plans are nearing completion for the First Oklahoma Conference on Handicapped Children to be held March 13-14 at the First Christian Church, Oklahoma City.

It will be the initial attempt here to bring together physicians, parents, educators, nurses, psychologists, therapists and others to evaluate existing services and determine unmet needs of physically or mentally impaired children.

The conference is sponsored by the Oklahoma chapter of the American Academy of Pediatrics, the Oklahoma Orthopedic Society, and the Nemours Foundation of the DuPont Institute, Wilmington, Del. It is coordinated by the Junior League of Oklahoma City.

These guest speakers will address the conference and serve as consultants for group discussions: Eric Denhoff, M.D., medical director, Meeting Street School for Handicapped Children, Providence, R.I., and chairman, Committee on the Handicapped Child, American Academy of Pediatrics; George H. Schade, M.D., professor of pediatrics and psychiatry, University of California School of Medicine, and chief of child psychiatry service, University of California Medical Center, San Francisco; Romaine P. Mackey, Ph.D., chief, Exceptional Children and Youth division, Office of Education, Department of Health, Education and Welfare, Washington, D.C.; and A. R. Shands, Jr., M.D., Medical Director, Alfred I. DuPont Institute, Wilmington, Delaware.

All facets of chronic handicapping conditions in childhood, including mental health, problems of special education and others, will be considered.

In addition to appraising resources now available and defining needs, a goal of the conference is to recommend ways of coordinating present facilities and programs. Representatives of all official and unofficial agencies concerned have been invited.

Members of the conference executive committee are: W. K. West, M.D., representing the Oklahoma Orthopedic Society; C. M. Bielstein, M.D., president, Oklahoma County Medical Society; Hayden Donahue, M.D., director, State Department of Mental Health; Harris D. Riley Jr., M.D., head of the Department of Pediatrics; Don H. O'Donoghue, M.D., chairman of the Department of Orthopedics; and Sylvia Richardson, M.D., director, Child Study Center, all of the University of Oklahoma Medical Center; Melvin Barnes, Ph.D., superintendent of Oklahoma City public schools; Dick Graham, executive secretary, Oklahoma State Medical Association; H. Dick Clarke, director, Oklahoma Society for Crippled Children; Ira McConnell, director, Oklahoma Commission for Crippled Children; A. LeRoy Taylor, state director of special education;

Mrs. Evelyn Cummins, executive director, Oklahoma City Community council; Vilona Cutler, executive secretary, Oklahoma Health and Welfare association; Mrs. W. F. Mathews, board member, Oklahoma County Council for Retarded Children; Mrs. Boston W. Smith, chairman, and Mrs. Ben T. Head, vice-chairman, Junior League coordinating committee.

## Weight Reduction Pamphlet Available

The Council on Foods and Nutrition of the AMA has produced a new pamphlet entitled "The Healthy Way to Weigh Less." Emphasizing the need for a planned and practical approach to weight reduction, the pamphlet is available in quantity.

All members are invited to distribute this pamphlet to their patients and to the public through their offices, at appropriate meetings of interested organizations, and through all media.

To order this pamphlet, address Phillip L. White, Sc. D., Secretary, Council on Foods and Nutrition, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.



## **International Congress on Occupational Health to Meet**

The 13th International Congress on Occupational Health—first to be held in the Western Hemisphere—will meet in New York City, July 25 to 29, 1960, according to an announcement by Doctor Leo Wade, of New York, who is chairman of the Organizing Committee.

Several thousand physicians, nurses, industrial hygienists and other delegates from more than forty countries will attend, Doctor Wade said. He is medical director for Esso Standard Oil Company.

“With experts from all over the world gathered in New York to discuss and share important knowledge in the fields of occupational injury and disease,” he said, “the 13th Congress will emphasize the fact that the science of health knows no national boundaries.”

Theme of the New York meeting will be prevention, rather than cure. Program participants from the many countries will report on their experiences, the findings of both clinical and laboratory research, and on methods for control of occupational health hazards. Plans already are under way to provide meeting facilities, and for translation services, accommodations for the visitors, and other arrangements.

The congresses are sponsored by the Permanent Committee and International Association on Occupational Health, of which Doctor Sven Forssman, of Stockholm, is president and Doctor Enrico Vigliana, of Milan, is secretary.

All previous meetings have been held in Europe, beginning with the first one in Milan in 1906. The 12th Congress was in Helsinki in 1957.

Doctor Wade said the international meetings on occupational health are one means of implementing an objective outlined by the President in his latest State of the Union message.

“A program of science for peace,” Presi-

dent Eisenhower said, “might provide a means of funneling into one place the results of research from scientists everywhere, and from there making it available to all parts of the world. There is almost no limit to the human betterment that could result from such cooperation.”

As modern industry continuously expands its uses of materials and technological techniques throughout the world, new occupational hazards come into being to take their places beside such old and well-known ones as arsenic, mercury, and lead.

Radioactive materials, for example, are being used to an increasing extent in industry. Findings of research now in being which will be reported at the 13th International Congress on Occupational Health will supplement present knowledge on the control and effects on health of exposures to radiation in industry.

Doctor Wade pointed out that such man-made hazards among industrial workers can and, in most instances, are being controlled—with resulting benefits in health, increased productivity and economic well-being for vast segments of the world's population.

## **Board of Obstetrics and Gynecology to Hold Examination**

The next scheduled examinations, Part II, oral and clinical, for all candidates for the American Board of Obstetrics and Gynecology will be conducted at the Edgewater Beach Hotel, Chicago, Illinois from May 8 through May 19, 1959.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations in the near future.

Current bulletins, outlining the requirements for application, may be obtained by writing to: Robert L. Faulkner, M.D., Secretary, 2105 Adelbert Road, Cleveland 6, Ohio.

## Wesley Hospital Announces New Foundation

Wesley Hospital, Oklahoma City, recently announced the formation of a foundation to direct research into heart surgery, hearing problems and clinical testing of new medications.

Audiology and heart catheterization facilities, as well as a heart pump for work leading to open-heart surgery, have been donated to the foundation.

A \$10,000 grant-in-aid to finance study of a new drug has been given to the foundation by an eastern laboratory. The foundation will also make two fellowships available to the University of Oklahoma to support research in problems of the hard of hearing.

According to Ben H. Nicholson, M.D., president of the foundation, the activities, at the outset will include research into: the problems of defective hearing, development of surgical techniques in the field of otology, catheterization of the heart, making possible more accurate diagnosis of many defects, laboratory research leading to open-heart surgery and clinical testing of new medications.

Doctor Nicholson pointed out that the foundation augments but will not conflict with the purposes or operation of any other existing local facility.

### Non-Profit Group

The Wesley Foundation will be concerned with clinical research and its application to the improved treatment of patients in addition to basic research.

No public fund-raising program is planned now or in the future, Doctor Nicholson emphasized.

The foundation's principal income at present will be realized from its audiology department. Completely established and operating electronic equipment and facilities for testing of patients with hearing defects have been donated to the foundation. The income from their use will finance increased research into problems of defective hearing and development of surgical techniques in otology.

The audiology department will also train more physicians and technicians—audiologists, speech therapists, electronic engineers, physicists, etc.—so more persons with such

## Denver to Host Southwestern Surgical Congress

Members of the Southwestern Surgical Congress will hold their annual meeting in Denver, March 30 through April 2, it was announced recently by Robert B. Howard, M.D., Councilor from Oklahoma City. The Brown Palace will serve as headquarters hotel for the four day event.

An outstanding group of guest speakers has been obtained by the Program Committee. Scheduled to speak are: O. T. Clagett, M.D., Rochester, Minnesota; J. Englebert Dunphy, M.D., Boston; H. Relton McCarroll, M.D., St. Louis; Douglas Macomber, M.D., Denver; and, Reed Nesbitt, M.D., Ann Arbor.

Monday, the first day, will be devoted entirely to the scientific program with the evening left free for personal planning. Tuesday morning will also be devoted to scientific presentations, but a ski train trip through Moffat Tunnel is slated for the afternoon. Wednesday will see a return to a full day of scientific work, topped by entertainment during the evening.

The formal program will end Thursday noon, but will be followed by an afternoon tour of the Air Force Academy. On Friday, an educational extra will be provided for those wishing to stay after the close of formal scientific activities. Henry Swan, M.D., Head of the Department of Surgery at the University of Colorado Medical Center, will conduct a series of clinics for those interested.

---

defects may be served.

Two fellowships, one at the master's level and the other at the Ph.D. level, will support a close liaison between personnel and facilities of the University Speech and Hearing Clinic and the audiology department.

The foundation is delivering to the University Hospitals a powerful Zeiss otologic operating microscope. Used for ear surgery, it will fill a gap in the training of residents in University's otolaryngology department.

The grant-in-aid will finance study of the new drug, NF-260, one of a series of chemical compounds belonging to the nitrofurantoin family, many of which are in wide use as anti-bacterial agents.

## Residency in Preventive Medicine And Public Health To Be Offered

A new two-year residency in Preventive Medicine and Public Health, first of its kind in the nation, will be offered by the University of Oklahoma School of Medicine and the State Department of Health beginning July 1.

It will be the first to include one year of training at a university medical center, an effort to give future public health physicians a strong clinical foundation for an understanding of current problems in community health. Second year of the residency will be spent in local health departments.

William W. Schottsteadt, M.D., Associate Professor of Preventive Medicine and Public Health, announced fellowships of \$5,000 per year are available.

He is coordinator of the program for the Medical School and John Shackelford, M.D., Director of Local Health Service, will coordinate activities for the State Health Department.

Development of the residency training program was made possible by grants totaling nearly \$250,000 from the National Institutes of Health and the Commonwealth Fund. A National Institutes grant for \$147,960 will be spread over a five-year period, and the Commonwealth grant of \$95,127 covers a three-year period.

Pointing to the need for a change in public health training to keep pace with a major shift in the health problems confronting society, Dr. Schottsteadt said "training programs designed to prepare physicians and nurses to meet infectious and communicable diseases at a community level are not adequate preparation.

"Chronic diseases—especially cardiovascular, mental diseases and cancer—accidents, civil defense problems, atomic medicine are now in the foreground," he added.

During the first year of the residency at the University of Oklahoma Medical Center,

## "American Registry of Doctors Nurses" In Violation of Nursing Act

In the October issue of *The Journal*, it was reported that the American Registry of Doctors Nurses was declared in violation of the Nursing Practice Act of Florida, the state in which the newly-formed organization got its start. Since that time, the organization has apparently moved its office to Washington, D.C., where it is soliciting memberships from doctors' nurses in a nationwide mail campaign.

Recent information from the Oklahoma Board of Nurse Registration and Nursing Education reveals that the Oklahoma Attorney General's Office has ruled that anyone who is not a registered nurse and who represents herself as a "Registered Doctor's Nurse" or wears a pin with the "RDN" designation on it indicates to all that she is a registered nurse and is in violation of the Nursing Practice Act of this state.

To qualify for membership, a doctor's employee must only have worked in a physician's office or clinic for a period of at least six months. "Benefits" of membership include an official pin, a car sticker and the right to buy group hospitalization insurance.

---

instruction will be centered around clinical experience in the medical, surgical, pediatric, and psychiatric clinics.

Seminars and conferences will then be used to generalize from individual clinical problems to the role of these in community health.

The second year will be spent in local health departments, in Tulsa and Shawnee, giving the resident first hand experience in both urban and rural health department work. Research potential of the community also will be emphasized.

The training program has received American Medical Association approval and meets field experience requirements of the Board of Preventive Medicine and Public Health.



## American College of Surgeons To Meet in St. Louis

Oklahoma surgeons will be among 3,500 physicians expected to attend a four-day sectional meeting of the American College of Surgeons to be held in St. Louis, Missouri, March 9-12, 1959. Headquarters will be in the Kiel Auditorium with many sessions in leading St. Louis hospitals.

The program will include hospital clinics, panel discussions, symposia, scientific papers, technical exhibits, medical motion pictures, and specialty surgery clinics. The meeting is designed to inform the medical profession at large about developments in surgery, and to focus attention on newer ways of handling problems encountered in daily practice.

A special program for nurses and related medical personnel will include discussions on comprehensive care of the patient who has successfully undergone pelvic evisceration, open technique in the management of burns, congenital heart disease, and other problems.

Doctor Frank McDowell, Associate Professor of Surgery, Washington University School of Medicine, St. Louis, is in charge of the local advisory committee on arrangements. Doctor H. Prather Saunders, Associate Director of the American College of Surgeons, is in charge of the sectional meeting for the College.

Hospital clinics have been arranged at Barnes Hospital, Jewish Hospital, St. Louis City Hospital, St. Louis University Hospitals, St. Luke's Hospital and the United States Veterans Administration Hospital.

## 162 Registered for Colloquy

The Second Oklahoma Colloquy on Advances in Medicine drew a total of 162 physicians and research scientists to the University of Oklahoma Medical Center for a three-day conference on arthritis and related disorders.

Registrants came from 16 states to hear papers by 11 guest speakers and nine members of the Oklahoma School of Medicine faculty. Plans are to publish the proceedings in book form. Sessions were held November 12-15.

## AMA, AHA Take Issue With Hospital Critic

The director of the American Hospital Association and the executive vice-president of the American Medical Association recently took issue with an article on practices in hospitals in a recent issue of *Look* magazine.

Doctor Edwin L. Crosby is director of the American Hospital Association. Doctor F. J. L. Blasingame is executive vice-president of the American Medical Association.

The joint release was authorized by both organizations.

Doctor Crosby wrote a letter to Vernon C. Myers, the magazine's publisher, commenting on the article by Roland H. Berg, *Look* medical editor.

He said, "One needn't believe that everything is perfect in our hospitals—as it is not in other public service programs—to conclude that the handling of an admittedly difficult problem by Mr. Berg and *Look* was most unfortunate."

Doctor Crosby termed the article's opening sentence—"A hospital is not a fit place in which to be sick"—as "an outrageous misstatement." He said, "This statement is disproved by an abundance of evidence; the growing acceptance by the public of the hospital as the place to get well; the direct relationship between the drop in maternal mortality rates and the increasing frequency with which hospitalization is sought for childbirth."

Doctor Crosby told the *Look* publisher that although "Mr. Berg devotes much space to patient dissatisfaction . . . the very study he quotes is at odds with his findings." The study on five hospitals in California was sponsored by the California Medical Association. Doctor Crosby said 95 and 94 per cent of the patients in the two hospitals studied in greatest detail were generally satisfied with their care and treatment.

The AHA director pointed out that hospitals have, for the last decade been continuously striving "to keep abreast of the explosive growth in medical science and to

bring those advantages to the American people."

He observed, "It is difficult to keep apace, to meet the demands of the patients and physicians for even better and ever more complex care and at the same time solve the subtle human relations problem in a hospital."

"I am fearful that you may have unwittingly intensified a problem already difficult enough," Dr. Crosby wrote. He added, "... hospital administrators face the continuous problem of fitting inadequate amounts of money to increasing great needs. It is understandable that they trim in the area of scientific needs only as a last resort. We believe that there is a major problem in the underfinancing of hospital care; a tremendous service deficit in our hospitals. The budgets are balanced somehow. We suspect that this balance is at the expense of the kind of hospital care that medicine and hospitals could provide and the kind of hospital care we believe that a properly educated public would finance."

Doctor Blasingame speaking for the American Medical Association, said:

"By taking isolated examples from a limited survey and drawing general inferences from them, *Look* not only has done a grave injustice to the medical profession and to hospitals but to the readers of the magazine.

"The blanket condemnation of all hospitals, based on a survey of five hospitals out of 5,640, is deplorable. Actually, the survey reported a tremendous degree of patient satisfaction, the lowest cited figure being 94%. This was not mentioned in the *Look* article.

"While the article purportedly calls for better physician-patient relationships, it actually harms the patient's confidence in the care he will receive from his physician and in the hospital, so essential for the best in medical care. The article cannot help but increase the natural insecurity of the afflicted and the suffering.

"The article also violates the basic concept of sound reporting. Matters such as

## Oklahoma Dietetic Association Will Convene February 27

All members of the Oklahoma State Medical Association are invited to attend the 21st Annual Oklahoma Dietetics Association Convention to be held February 27 and 28, in Oklahoma City.

Opening the meeting on Friday evening at 8:00 p.m., in the Auditorium of the University of Oklahoma School of Medicine, will be Fredrick J. Stare, M.D., Professor and Chairman of the Department of Nutrition at Harvard, who will speak on "Nutrition for You and Me." In addition to his duties at Harvard, Doctor Stare is Editor of *Nutrition Reviews*.

On Saturday morning, the session will begin at 10:00 a.m., in the Zebra Room of the Municipal Auditorium, with Mrs. Celeste K. Kemler, Administrator, Valley View Hospital, Ada, Oklahoma, speaking on "Kitchens in the Future."

Concluding the program on Saturday morning will be a talk, "Low-Fat Cookery," by Doctor and Mrs. James V. Warren, Galveston, Texas. Doctor Warren is Professor of Medicine and Chairman of the Department of Internal Medicine at the University of Texas School of Medicine. Mrs. Warren is Co-author of "Low-Fat Cookery" and "The Low-Fat Diet."

Exhibits showing the latest in food and equipment will be open from 8:30 a.m. to 6:00 p.m., Friday, February 27 and 8:30 a.m. to 2:00 p.m., Saturday, February 28.

---

these cannot be considered adequately or accurately covered until both sides of the question are reported with fidelity and without distortion.

"The medical and hospital professions have been sincere in devoting their efforts to a continuing program of self-improvement designed to benefit our patients. We welcome constructive suggestions to help us do even better. For the sake of our patients, we must object to those we believe will be harmful."



## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**PRACTICE OF CHIROPRACTIC**—The U.S. Court of Appeals, 5th Circuit, in a *Per Curiam* decision, held that chiropractors are entitled to the opportunity to prove that the State of Louisiana's denial of their claimed right to practice chiropractic violates the Due Process and Equal Protection clauses of the 14th Amendment. The Court stated:

"It is certainly true that the State is not bound to recognize every peculiar theory or school of medicine. Without doubt it is reasonable for the state to outlaw witch doctors, voodoo queens, bee stingers, and various other cults which no reasonably intelligent man would choose for the treatment of his ills, but it would certainly be arbitrary to exclude some, if not all, of the following classes which Louisiana does admit to practice, dentists, osteopaths, nurses, chiropodists, optometrists, pharmacists, and mid-wives. Just where is the dividing line? Under all of the cases, we think it is that the State cannot deny to any individual the right to exercise a reasonable choice in the method of treatment of his ills, nor the correlative right of practitioners to engage in the practice of a useful profession.

"... It is not denied that the state may regulate, within reasonable bounds, the practice of chiropractic for the protection of the public health, but it is claimed that the requirements of a diploma from a college approved by the American Medical Association and a knowledge of surgery and *materia medica* bear no reasonable relation to the practice of chiropractic. Without hearing the evidence, we cannot say that those claims are untrue, or that a reasonable man might not intelligently choose a chiropractor for the treatment of some particular ailment."

*England v. Louisiana State Board of Medical Examiners*, 27 L.W. 2122 (C.A. 5, Sept. 9, 1958).

**DISCOVERY**—Two Federal District Courts in Illinois have disagreed with the Supreme Court of Illinois concerning the right of a plaintiff to ascertain the existence and extent of a defendant's liability insurance. Last year in *People ex. rel. Terry v. Fisher*, 145 N.E. 2d 588, the Illinois Su-

preme Court held that an inquiry into liability insurance was permissible under the state's practice act and its rules. In *Gallimore v. Dye*, 21 F.R.D. 283 (Jan. 13, 1958) and in *Roembke v. Wisdom* (June 19, 1958) the U. S. District Court for the Eastern District of Illinois and the U.S. District Court for the Southern District of Illinois respectively have both denied discovery concerning the existence of the defendant's liability insurance.

**LIBEL AND SLANDER**—A physician brought an action for alleged libel against a group health insurance company, its claims manager, and its medical director based on a letter written by the claims manager to the physician's patient. In this letter, the patient's claim was denied because the services rendered by the physician were "not required in accordance with accepted standards of medical practice." The Court held that these words did not constitute libel *per se*.

*Hirschorn v. Group Health Insurance, Incorp.*, 175 N.Y.S. 2d 775 (N.Y., May 12, 1958)

**TORT LIABILITY OF HOSPITAL**—The Georgia Court of Appeals sustained a judgment for the plaintiff, a heart patient, for damages he suffered because of the negligence of the defendant in failing to take special care of him. The plaintiff while under sedation became irrational and feared that the hospital attendants were trying to kill him. He escaped from his room and from a number of hospital attendants who made no effort to restrain him. He jumped from a window sustaining serious injuries.

*Emory Univ. v. Lee*, 8 Negligence Cases (2d) 860 (Ga., May 14, 1958).

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER POSTGRADUATE PROGRAM

Oklahoma City, Oklahoma  
Individual Postgraduate Courses

### ADVANCE ELECTROCARDIOGRAPHY—March 2 through 6

(Prerequisite, Dr. Bayley's Basic Electrocardiography course.)

### OBSTETRICAL-GYNECOLOGICAL SYMPOSIUM—March 7

Sponsored by the Oklahoma City Obstetrical and Gynecological Society. There will be two prominent guest lecturers.

### OPHTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 12 and 13

Sponsored by Oklahoma City Society of Ophthalmology and Otolaryngology.

Guest Lecturers:

Michael J. Hogan, M.D., Ophthalmologist, San Francisco.

Prominent Otolaryngologist to be announced.

### ORTHOPEDIC SYMPOSIUM—April 10 and 11

Treatment of Athletic Injuries.

Sponsored by the Regional Committee on Trauma of the American College of Surgeons.

### FIFTH ANNUAL COMBINED SURGERY, RADIOLOGY, PATHOLOGY SYMPOSIUM—May 14 and 15

Diagnosis and Treatment of Thyroid Diseases.

Sponsored by the Oklahoma Association of Pathologists, Oklahoma Association of Radiologists and Oklahoma Chapter of American College of Surgeons. Guest participants of national reputation in surgery, radiology and pathology will participate.

### OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—May 22

Two guest lecturers and presentation of original papers by members of the various house staffs will highlight this program. Participating hospitals are: Hillcrest Medical Center, Tulsa, St. John's, Tulsa; McBride, Mercy, St. Anthony, University, Veterans Administration, Wesley, Oklahoma City; Central State Hospital, Norman.

## SERIAL POSTGRADUATE COURSE

Postgraduate Division  
UNIVERSITY OF OKLAHOMA MEDICAL CENTER  
Oklahoma City, Oklahoma  
1958-1959

Feb. 11—Urology Symposium and C. B. Taylor Lectureship. (Guest Lecturer to be Announced.)

Mar. 11—Medicine—Advances in the Diagnosis and Management of Common Allergic Disorders.

April 8—Anesthesiology—Anesthesia for the Part-Time Anesthetist.

May 13—Pediatrics—Antimicrobial Therapy and Treatment of Infectious Disease in Childhood.

June 10—Surgery—Herniae.

Designed so physicians may attend four hours of formal instruction in the above fields while spending only one-half day from their office, this series is approved for credit by the Oklahoma Academy of General Practice. Time will be 3:30 to 8:30 p.m. on the Second Wednesday of each month, September through June. Registration is \$3.00 per session or \$25.00 for the entire series.

Further information concerning the individual and serial courses may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N. E. 13th Street, Oklahoma City, Oklahoma.

## OKLAHOMA CITY INTERNISTS' ASSOCIATION WASHINGTON'S BIRTHDAY CLINIC

February 25, 1959 University of Oklahoma Medical Center  
Oklahoma City

The Twenty-Sixth Annual Washington's Birthday Clinic will be held February 25, 1959, in Room 8-F, University of Oklahoma Medical Center. A complete program is listed in the Medical News in this issue of *The Journal*.

## NEW ORLEANS GRADUATE MEDICAL ASSOCIATION

March 2, 3, 4, 5, 1959 Roosevelt Hotel  
New Orleans, Louisiana

The 22nd Annual Meeting of the New Orleans Graduate Medical Assembly will be held March 2, 3, 4, 5, 1959 at the Roosevelt Hotel in New Orleans. For information concerning the program and an itinerary of the clinical tour to Mexico which follows the New Orleans meeting, write to, Maurice E. St. Martin, M.D., Secretary, New Orleans Graduate Medical Assembly, Fourteen Thirty Tulane Avenue, New Orleans 12, Louisiana.

## THE UNIVERSITY OF TEXAS POSTGRADUATE SCHOOL OF MEDICINE Anesthesiology\*

February 18, 19, 20, 1959 Houston, Texas

The Fourth Annual Course in Anesthesiology to be offered by the University of Texas Postgraduate

School of Medicine will be held February 18, 19, 20, 1959 in Houston. The course is designed to review theory and practice of commonly used anesthetic techniques and will include discussions of some of the newer drugs.

\*Address all inquiries to: The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Houston 25, Texas.

**SEVENTH POSTGRADUATE CONFERENCE  
IN MEDICINE AND SURGERY**

**March 2, 3, 4, 1959**

**Temple, Texas**

The Temple Division of the University of Texas Postgraduate School of Medicine announces its Seventh Postgraduate Conference stressing Current Topics in Medicine and Surgery. The program, sponsored by Scott, Sherwood and Brindley Foundation, will be presented in Temple on March 2, 3, 4, 1959.

F. J. L. Blasingame, M.D., Executive Vice-President of the American Medical Association, will be the guest speaker.

Registration forms are available from the office of the Assistant Dean, University of Texas Postgraduate School of Medicine, Temple Division, Temple, Texas.

**INTERNATIONAL ACADEMY OF PROCTOLOGY**

**APRIL 5-9, 1959**

**The Plaza**

**New York, New York**

The Plaza Hotel, New York, will be the site of the Eleventh Annual Convention of the International Academy of Proctology, to be held April 5-9. Special emphasis will be placed on anal and rectal panel presentations and on newer treatment methods.

Non-members as well as members are invited to

attend the meeting and the annual dinner-dance. There is no registration fee.

**SOUTHWESTERN SURGICAL CONGRESS**

**March 30-31 — April 1-2**

**Brown Palace Hotel**

**Denver, Colorado**

The Annual Southwestern Surgical Congress will meet March 30-31, April 1-2, 1959 at the Brown Palace Hotel, Denver, Colorado. Detailed information is available by writing to the central office Southwestern Surgical Congress, 813 Medical Arts Building, Oklahoma City, Oklahoma.

**AMERICAN COLLEGE OF OBSTETRICIANS and GYNECOLOGISTS**

**April 6-8, 1959**

**Convention Hall**

**Atlantic City**

The American College of Obstetricians and Gynecologists will hold its annual meeting in Atlantic City, April 6-8, 1959, with general sessions in Convention Hall.

For further information, write to Mr. Donald F. Richardson, Executive Secretary, The American College of Obstetricians and Gynecologists, P.O. Box 749, Chicago 90, Illinois.

**AMERICAN COLLEGE OF SURGEONS**

**March 9-12, 1959**

**Kiel Auditorium**

**St. Louis, Missouri**

A Sectional Meeting of the American College of Surgeons will be held at the Kiel Auditorium, St. Louis, March 9-12, 1959. For further information, write to American College of Surgeons, 40 East Erie Street, Chicago 11, Illinois.

**Plan to Attend The  
53rd Annual Meeting**

**of the**

**Oklahoma State Medical Association**

**April 20, 21, 22, 1959**

**Mayo Hotel**

**Tulsa, Oklahoma**

# Organization News

## OSMA Annual Meeting Plans Near Completion

Arrangements for the 53rd Annual Meeting of the Oklahoma State Medical Association to be held in Tulsa, April 20-22, 1959, are virtually complete with convention officials anticipating a record attendance of over 800 Oklahoma physicians.

Doctor Edward L. Moore of Tulsa, General Chairman, said highlights of the Annual Meeting would include an outstanding scientific program featuring thirteen nationally known medical personalities as visiting distinguished guest speakers, the President's Inaugural Dinner Dance, commercial and scientific exhibits, roundtable luncheons, specialty group meetings, medical motion pictures, the annual golf tournament and dinner, the Doctors Hobby Show, a program of entertainment and activities by the Auxiliary, and the annual business meeting of the House of Delegates.

Scheduled to appear as guest lecturers on the scientific program are: Robert W. Buxton, M.D., Chairman of the Department of Surgery, University of Maryland School of Medicine, Baltimore, Maryland; William D. Davis, Jr., M.D., Associate Professor of Medicine, Tulane University School of Medicine, New Orleans, Louisiana; Isadore Dyer, M.D., Chairman of the Department of Obstetrics and Gynecology, Tulane University School of Medicine, New Orleans, Louisiana; Charles B. Huggins, M.D., Chairman of the Department of Urology, University of Chicago School of Medicine, Chicago, Illinois; Ormand C. Julian, M.D., Professor of Surgery, University of Illinois School of Medicine, Chicago, Illinois; E. Perry McCullagh, Chairman of the Department of Endocrinology and Metabolism, Cleveland Clinic, Cleveland, Ohio; P. Robb McDonald, M.D.,



E. Perry McCullagh, M.D., pictured above, is one of the speakers for the OSMA Annual Meeting. Doctor McCullagh is Chairman of the Department of Endocrinology and Metabolism, Cleveland Clinic.

Associate Professor of Ophthalmology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania; Michael L. Mason, M.D., Chairman of the Department of Plastic and Reconstructive Surgery, Northwestern University School of Medicine, Chicago, Illinois; Willard H. Parsons, M.D., Associate Professor of Surgery, University of Mississippi School of Medicine, Vicksburg, Mississippi; Nathan J. Smith, M.D., Chair-



man of the Department of Pediatrics, University of Wisconsin School of Medicine, Madison, Wisconsin; and Harwell Wilson, M.D., Professor of Surgery, University of Tennessee School of Medicine, Memphis, Tennessee.

Also scheduled to appear are Doctor Gunnar Gundersen, President of the American Medical Association, LaCrosse, Wisconsin, who will address the House of Delegates on April 19, and Mr. E. B. Bronson, eminent San Francisco attorney and specialist in legal medicine and malpractice matters.

A name dance orchestra to be announced later will play for four hours of dancing at the President's Inaugural Dinner Dance on Tuesday, April 21st. The event will open with a social hour and dinner at The Mayo, followed by a program of musical entertainment featuring a group of physician-singers from the Greene County Medical Society of Springfield, Missouri. Dancing will begin at 9:00 p.m. at the nearby Cimarron Ballroom.

Doctor James Brown and five other Springfield, Missouri, practicing physicians have soared to national popularity with their "Medical Hit Parade," parodies of twenty songs which the troupe performs. All excellent singers, the doctors have convulsed medical audiences in all parts of the United States with their delightful presentations. Several hundred copies of a long-play record of their act have been sold in the last few months, and profits are used for a scholarship for Greene County medical students. Doctor Brown and his group have a backlog of nearly 100 invitations to medical meetings and recently appeared at a medical convention at Nassau, the Bahamas.

Tickets for the President's Inaugural Dinner Dance are now on sale at \$7.50 per person. This includes the social hour, dinner, inaugural program, the "Medical Hit Parade," and the four-hour dance to a name orchestra. Tickets may be ordered in advance by writing: Tulsa County Medical Society, B9 Medical Arts Building, Tulsa 19, Oklahoma. Checks are to be made payable to "Oklahoma State Medical Association." Only 450 tickets, the capacity of the Crystal

Ballroom of The Mayo, will be sold, and convention visitors are urged to order in advance.

Requests for hotel accommodations are now being received. Physicians should write to: Hotels Committee, Tulsa County Medical Society, B9 Medical Arts Building, Tulsa 19, Oklahoma. Do not write hotels directly; the Tulsa Hotel Association requires booking of all reservations through a central committee, and any requests sent directly to a hotel will be forwarded to the Committee. Please state time and date of arrival and departure, type of accommodations desired, and preference of hotels (Mayo, Tulsa, Adams, Bliss, Alvin). Most convention visitors will be housed at The Mayo, headquarters hotel, although early requests for accommodations are suggested. All requests will be confirmed directly to the doctor.

The House of Delegates will meet on Sunday, April 19, at 10:00 a.m. in the Pompeian Room of The Mayo. The Council will meet on Saturday, April 18, at 1:00 p.m. at The Mayo.

A program of medical motion pictures has been scheduled for each morning, Monday through Wednesday, April 20-22. Daily roundtable luncheons will be held on Monday and Tuesday, April 20-21, at which visiting guest speakers will answer questions from the floor. Tickets will be on sale at the General Registration Desk.

Scientific exhibits by members of the Oklahoma State Medical Association and by health and medical groups will be on display in the Ivory Room on the Mezzanine of The Mayo Monday through Wednesday. The Doctors Hobby Show, sponsored by the Auxiliary to the Oklahoma State Medical Association, will feature an exhibit of crafts and hobbies of practicing Oklahoma physicians.

The Past-Presidents Breakfast, honoring former Presidents of the Oklahoma State Medical Association, will be held on Tuesday morning, April 21, at 8:00 a.m. at The Mayo.

Doctors will be guests of the beautiful Oaks Country Club for the Annual Golf Tournament and Dinner to be held Wednesday.

day afternoon and evening, April 22nd. Details of this event will be announced later. The scientific program and exhibits will close at 1:00 p.m. on Wednesday to permit physicians to participate in the Golf Tournament.

The Commercial Exhibit will feature displays of forty-three manufacturers and distributors of pharmaceuticals, surgical supplies, x-ray equipment, food products, insurance, and other products and services of interest to doctors.

Technical exhibitors are Parke-Davis, A. S. Aloe Company, Wyeth Laboratories, Medco Products Company, Blue Cross-Blue Shield Plans of Oklahoma, J. D. Young Company, Oklahoma Physicians' Supply, Ciba Pharmaceutical Products, Sealy Mattress Company, R. J. Reynolds Tobacco Company, A. H. Robbins Company, William S. Merrell Company, R. P. Kincheloe X-Ray Company, Merck Sharp & Dohme, Knoll Pharmaceuticals,

Mid-Continent Surgical Supply Company, Merkel X-Ray Company, G. D. Searle Company, George A. Breon, Geigy Pharmaceuticals, Coca-Cola, Mid-West Surgical Supply Company, U. S. Vitamin Corporation, Schering Corporation, E. R. Squibb & Sons, Greb X-Ray Company, Ortho Pharmaceutical Company, Sandoz Pharmaceuticals, General Electric X-Ray Company, St. Paul-Mercury Company, Kay Pharmacal Company, Lederle Laboratories, J. A. Majors Company (W. B. Saunders), Abbott Laboratories,

Eli Lilly & Company, Carnation Company, J. B. Roerig Company, Endo Laboratories, Melton-Myers Surgical Supply Company, Rhinopto Company, Mead Johnson, S. E. Massengill Company, Roche Laboratories, and Merrill Lynch, Pierce, Fenner and Smith, Inc.

The Auxiliary to the Oklahoma State Medical Association will hold its annual meeting at the same time and a full program of activities is planned.

A complete program will be mailed to all Oklahoma doctors about March 1st and will also appear in the March issue of *The Journal* of the Oklahoma State Medical Association.

## **"Essential" Doctors Don't Belong in Ready Reserve**

Notification has been received from the National Advisory Committee to the Selective Service System to the effect that staff or faculty members of hospitals and medical schools, who are members of the Ready Reserve, are expected to enter the service when called and not be declared essential to the institution at the time a call is made. Otherwise, the memorandum said, the Ready Reserve does not serve the purpose for which intended.

If any such individuals are now in essential positions, they should request transfer to the Standby Reserve. By making such a transfer, they will, of course, lose pay but not retirement benefits.

Schools and hospitals should therefore determine the military status of their faculties and staff and take corrective action, if indicated. Only by such evaluation will they be able to determine what their losses will be in the case of emergency.

This obligation of members of the Ready Reserve to serve when called also applies to physicians in private practice. Only in very exceptional cases would such individuals be given consideration for delay due to essentiality.

## **Medical Assistants Announce Summer Workshop**

The Oklahoma State Medical Assistants Society has announced plans for a summer workshop to be held on the Oklahoma State University campus, in Stillwater, June 19, 20 and 21, 1959.

Purpose of the workshop, which is open to the society members, as well as to other interested parties, is to provide diversified information designed to aid assistants in doing a more effective job for doctors and patients. Background information of value to the medical assistant will be stressed, to-



gether with practical advice for meeting day-to-day problems.

Faculty for the three-day meeting will be comprised of members of the Oklahoma State University staff and members of the medical profession in Oklahoma. Their topics will include: Public Relations, Basic Economics, Current Legislation Affecting Medical Assistants, Oral and Written Communication, Ethics Pertaining to Medical Assistants, and Legal Aspects of the Medical Profession.

Registration fee will be \$20.00. Further information may be obtained by writing to Miss Nena Chadsey, President-Elect, Oklahoma State Medical Assistants Society, c/o R. G. Allen, M.D., Bartlesville, Oklahoma.

### **Fourteen Meetings at State Office in January**

The new year started with a flourish at the Executive Office of the O.S.M.A. with fourteen meetings having been placed in the record books.

Among the committees and groups that met were the Department of Public Welfare Committee, the Public Policy Committee (twice), the Committee on Occupational Health, the Sub-Committee on Rehabilitation and Restoration, the Executive Committee of the Council, the Council, the National Board of Directors of the Christian Medical Society, the Editorial Board, the Board of the Woman's Auxiliary, the Medical School Liaison Committee, the Rural and School Health Committee, the Special Report Committee on Welfare Fees and a group which met to discuss liability insurance problems. In addition, there were a number of outside meetings, both in-town and out-of-town, that were attended by association representatives.

Harried employees of the state office are now attempting to follow up the above meetings while bracing themselves for the six meetings already scheduled for February.

### **Washington's Birthday Clinic Scheduled by Internists**

The Oklahoma City Internist's Association has completed plans for their Twenty-Sixth Annual Washington's Birthday Clinic to be held in Room 8-E, University of Oklahoma Medical Center, Wednesday, February 25, 1959.

Hours for this year's clinic differ from last year, with registration beginning at 1:00 p.m. The meeting will adjourn at 5:15 p.m. for a social hour and dinner at the Faculty House, reconvening at 7:00 p.m. for the evening session.

Featured speaker for this year's clinic will be Walter M. Kirkendall, M.D., Associate Professor of Medicine and Director of Cardiovascular Research Laboratories, University of Iowa School of Medicine. The complete program follows:

#### **AFTERNOON SESSION**

Arthur E. Schmidt, M.D., Presiding

- 1:00 p.m.—Registration
- 1:45 p.m.—Clinical Application of Paper Electrophoresis—Nello D. Brown, M.D.
- 2:15 p.m.—Law of Initial Values—David Mock, M.D.
- 2:30 p.m.—Panel: Parkinson's Disease  
Moderator: Scott Hendren, M.D.  
C. G. Gunn, M.D.  
Richard E. Carpenter, M.D.  
A. C. Little, Jr., M.D.
- 3:30 p.m.—Coffee Break
- 3:45 p.m.—Measurement of Organ Blood Flow—Philip C. Johnson, M.D.
- 4:15 p.m.—Treatment of Hypertension—Walter M. Kirkendall, M.D., Associate Professor of Medicine and Director of Cardiovascular Research Laboratories, University of Iowa School of Medicine.
- 5:15 p.m.—Social Hour and Dinner  
Faculty House

#### **EVENING SESSION**

Mark Johnson, M.D., Presiding

- 7:00 p.m.—Recognition and Management of Respiratory Acidosis.  
Movie by: Reginald H. Smart, M.D.  
Hurley L. Motley, Ph.D., M.D.  
Joseph F. Boyle, M.D.  
University of Southern California  
School of Medicine  
Cardio-Respiratory Laboratory at the  
Hospital of the Good Samaritan,  
Los Angeles, California
- 7:30 p.m.—Clinical Pathological Conference  
H. Thompson Avey, M.D.  
William T. Snoddy, M.D.



## "She Went Thataway"

Early last summer a secretarial employee for one of the major oil companies in our state consulted her private physician with a multiplicity of complaints and requested that he write a letter to her department recommending sick leave. The physician complied and on the strength of the medical recommendation the employee was granted unavoidable absence due to illness. Two weeks later in accordance with departmental policy, an attempt was made to contact the ill employee to determine her progress. To the surprise of all concerned, the employee could not be reached as she was then on an extended trip through Canada with her husband.

After a little detective work, it was learned that her physician had not seen her since the day she consulted him to request his sanction for sick leave. She had timed her "illness" to coincide with her husband's annual vacation.

Another employee who does a little farming on the side has been known to develop "flu" every fall coincident with the winter wheat planting season. He will take unavoidable leave of absence for one week during which time he has been seen running his cultivator and "drilling in wheat." Yet every fall he returns to work with medical proof of "flu" as attested in a signed statement by his personal physician.

These are but two examples of the many similar cases of "avoidable-unavoidable" absences which can be found in the personnel files of any company.

Unavoidable absence benefits were never designed to cover a second annual vacation with pay. These benefits have been set up to cover unexpected medical emergencies or problems whether illness, injury or surgery. Unnecessary abuse of this privilege can only lead to increased costs.

In the last analysis, industry must rely on the physician's judgment of unavoidable absence.

Prepared by

**OSMA Committee on Occupational Medicine**

## Board of Contributing Editors Formed

The appointment of a new Board of Contributing Editors, to supplement the efforts of the constitutionally provided Editorial Board, has been announced by Ben H. Nicholson, M.D., Editor-in-Chief.

A recent joint meeting of the two boards served not only to formalize the appointments, but also provided new members with an opportunity to learn more of *The Journal* operation and, at the same time, offer constructive criticism of past issues.

Doctor Nicholson opened the meeting by explaining the purpose of *The Journal*, outlining the various sections comprising the magazine. Duties were also outlined for the members of the new Board. They were asked to submit at least one scientific editorial per year, to encourage others to do more scientific writing, and to review and abstract items of interest from other state publications. Proposed changes in format and advertising also were discussed at the meeting.

Members of the Board of Contributing Editors are: George M. Brown, M.D., McAlester; Richard H. Burgtorf, M.D., Shattuck; James H. Bushart, M.D., Lawton; James F. Hammarsten, M.D., Oklahoma City; R. R. Hannas, M.D., Sentinel; Leo Lowbeer, M.D., Tulsa; J. W. Murphree, M.D., Ponca City; Richard W. Payne, M.D., Oklahoma City; Henry T. Russell, M.D., Enid; Joe L. Spann, M.D., Tulsa; and Emil F. Stratton, M.D., Muskogee.

Members of the constitutional Editorial Board are: Doctor Nicholson, Editor-in-Chief, Oklahoma City; John G. Matt, M.D., Tulsa; and Donald W. Branham, M.D., Oklahoma City.

## ANNUAL MEETING

April 20, 21, 22, 1959

Mayo Hotel

Tulsa, Oklahoma

## OSMA—College of Surgeons Plan Athletic Injuries Program

Representatives from the Oklahoma State Medical Association met on January 28 with a group from the Oklahoma Chapter of the American College of Surgeons to discuss plans for the joint sponsorship of activities relating to the prevention and treatment of athletic injuries.

Appearing for the Association were the following members of the School Health Committee: C. W. Arrendell, M.D. (Chairman), Mark D. Holcomb, M.D., and Paul O. Shackelford, M.D. The surgeons' group was represented by Ralph A. McGill, M.D. (Chapter President), Irwin H. Brown, M.D., and R. G. Perryman, M.D. In addition, special guests were Mr. Lee K. Anderson, Secretary of the Oklahoma Highschool Athletic Association, and Mr. C. C. Cornelison, representing the Oklahoma Association of School Administrators.

The meeting resulted in the establishment of two basic points of agreement. First, the participants agreed that a continuing educational program was needed in the field of prevention and treatment of athletic injuries, to be directed at medical, educational and coaching disciplines. Secondly, it was agreed that such a program should initially manifest itself in the form of a presentation before the Oklahoma Coaches Clinic. The three and one-half day event, which annually attracts over five hundred coaches, will be held in August, 1959.

On the latter point, the group decided to formally ask for program time during the coaching clinic. If this request is granted, representatives of the O.S.M.A. and the American College of Surgeons will also ask for program time during the annual meeting of the school administrators group which will be held in June. Participation in the aforementioned meeting will not only provide an opportunity to outline the medical profession's interest in protecting the health of athletes, but will also be an opportune time to make formal announcement of the comprehensive program to be offered to the coaches.

## Council Meets For Interim Session

The Oklahoma State Medical Association's Council assembled on January 11 for its second meeting since the state convention last May. Twenty-six physicians were present for the three hour session.

As the first order of business, President Mohler reported on the actions of the Executive Committee which had met during the morning. Briefly, the committee had authorized certain repairs of the Executive Office, approved the purchase of a new addressograph, authorized financial assistance for the Auxiliary's annual meeting activities, approved the purchase of a burglar alarm, set a limit on the amount of reserves that could be accumulated in the treasury and agreed to consider Doctor Mohler's suggestion that consolidation of the Association's Committee structure be effected.

Reports were then heard from the following committee representatives: Mark Johnson, M.D., Committee on Medical Care for Recipients of Public Welfare; J. R. Stacy, M.D., Public Policy Committee; W. T. McCollum, M.D., Medical School Liaison Committee; M. O. Hart, M.D., Medico-Legal Relations Committee; and Ben H. Nicholson, M.D., Editorial Board.

In addition, Mr. Jack Spears, Executive Secretary of the Tulsa County Medical Society, reported on the progress being made in planning the annual meeting which will be held in Tulsa, April 20-22. Mr. Spears is serving as convention manager.

The next meeting of the Council is scheduled for April 18, 1959, preceding the 53rd Annual Meeting of the O.S.M.A.

The surgeons' representatives informed those in attendance that they were already working with the local chapter of the orthopedic surgeons to conduct a professional medical meeting on the same subject during the month of April. It was agreed that the content of the April program would provide an excellent nucleus around which could be built the program for the coaches.

## National AMA Conference To Be Held in Wichita

The American Medical Association, through its Council on Rural Health, will sponsor its Fourteenth National Conference on Rural Health on March 5-7, to be held at the Broadview Hotel, Wichita, Kansas. All Oklahoma physicians are invited to attend the two and one-half day meeting.

Outstanding presentations by nationally known speakers will highlight the conference. Special stress is being centered on such subjects as voluntary community self-help activities, mental health, problems of the aging, nutrition, dental health, costs of medical care and various aspects of health insurance.

### PROGRAM

#### THURSDAY MORNING SESSION

MARCH 5, 1959

#### BALLROOM

CARLL S. MUNDY, M.D., Presiding

- 8:00 REGISTRATION  
NO REGISTRATION FEE
- 9:45 OPENING SERVICE  
COMMUNITY SINGING  
Lester F. Weatherwax  
Farm Director  
Radio Station KFBI  
Wichita, Kansas
- 10:00 INVOCATION  
Dr. Homer K. Schafer  
Executive Director  
Wichita Council of Churches  
Wichita, Kansas
- 10:05 Greetings  
The Honorable George Docking  
Governor of the State of Kansas  
Topeka, Kansas
- 10:10 HORIZONS IN RURAL HEALTH  
F. S. Crockett, M.D., Chairman  
Council on Rural Health  
American Medical Association  
Lafayette, Indiana
- 10:25 TO THE STARS THROUGH DIFFICULTIES  
Louis M. Orr, M.D., President-Elect  
American Medical Association  
Orlando, Florida
- 10:45 THE DO IT "YOURSELF" AGE  
Earl L. Butz, Ph.D.,  
Dean of Agriculture and  
Director, Agricultural Extension Service  
Purdue University  
Lafayette, Indiana

DISCUSSION LEADER  
J. P. Schmidt, Ph.D.  
Extension Professor  
Agricultural Extension Service  
Ohio State University  
Columbus, Ohio

#### 11:40 LUNCHEON PERIOD

#### THURSDAY AFTERNOON SESSION

#### BALLROOM

ALLEN T. STEWART, M.D., Presiding

- 2:00 COMMUNITY SINGING
- 2:05 EXPERIMENT IN COMMUNITY HEALTH PARTICIPATION  
Moderator: V. E. Wilson, M.D.  
Assistant Dean  
University of Kansas  
School of Medicine  
Kansas City, Kansas
- 3:30 BREAK
- 3:40 WORKSHOP (Continued)
- 4:15 DISCUSSION
- 4:30 RECESS

#### THURSDAY EVENING

#### BALLROOM

CARROLL B. ANDREWS, M.D., Presiding

- 8:00 RECREATIONAL PROGRAM  
YOUTH'S SHOWCASE  
Presentation by Agricultural  
Extension Service  
Kansas State Agricultural College  
Manhattan, Kansas
- OUR COMMUNITY'S ANSWER  
Spirit of Kansas  
A vocal and instrumental presentation

#### FRIDAY MORNING SESSION

MARCH 6, 1959

#### BALLROOM

W. A. WRIGHT, M.D., Presiding

- 9:00 COMMUNITY SINGING
- 9:05 RURAL HEALTH COUNT-DOWN  
J. D. Smerchek  
Kansas Farm Bureau  
Manhattan, Kansas
- 9:20 GRANGE THINKING ON THE RURAL HEALTH FRONT  
Roy Battles  
Assistant to the Master  
The National Grange  
Washington, D.C.
- 9:35 WHO WILL HARVEST MY WHEAT  
Aubrey D. Gates, Director  
Division of Field Services



American Medical Association  
Chicago, Illinois

9:50 DISCUSSION

10:10 BREAK

10:20 FAMILY PHYSICIAN AND THE COST OF  
MEDICAL CARE

Conrad Barnes, M.D.  
Seneca, Kansas

10:35 THE BEST BUY IN INSURANCE

Charles H. Coghlan  
Executive Vice-President  
Ohio Medical Indemnity, Inc.  
Columbus, Ohio

10:50 THE HOSPITAL DOLLAR

John Pond  
Management Consultant to the  
Larimer County Hospital  
Boulder, Colorado

11:10 DISCUSSION

11:45 LUNCHEON PERIOD

**FRIDAY AFTERNOON SESSION**

**MARCH 6, 1959**

**BALLROOM**

F. A. HUMPHREY, M.D., Presiding

2:00 COMMUNITY SINGING

2:05 HOW HOSPITALS GET PEOPLE WELL

C. R. Brott, M.D.  
Beatrice, Nebraska

2:20 MENTAL HEALTH AS A PART OF  
GENERAL PRACTICE

Alonzo P. Peeke, M.D.  
Volga, South Dakota

2:35 THE NEW ERA OF AGING

Frederick C. Swartz, M.D.  
Chairman, Committee on Aging  
American Medical Association  
Lansing, Michigan

2:50 DISCUSSION

3:15 BREAK

3:25 HORIZONS IN MENTAL HEALTH

Prescott W. Thompson, M.D.  
Director, Out-Patient Service  
The Menninger Clinic  
Topeka, Kansas

4:00 DISCUSSION

4:30 RECESS

**FRIDAY EVENING BANQUET SESSION**

**BALLROOM**

F. S. CROCKETT, M.D., Presiding

7:00 BANQUET

**INVOCATION**

Reverend Donald Frogge  
Pastor Upland—Alida Parish  
Junction City, Kansas

**INTRODUCTION OF SPECIAL GUESTS**

**GREETINGS**

Woman's Auxiliary  
American Medical Association  
Mrs. E. Arthur Underwood, President  
Vancouver, Washington  
Student American Medical Association  
William Kirkham, Treasurer  
Oklahoma City, Oklahoma

**MUSICAL INTERLUDE**

**THE FIFTH DIMENSION**

T. P. Butcher, M.D., President  
Kansas Medical Society  
Emporia, Kansas

**SATURDAY MORNING SESSION**

**MARCH 7, 1959**

**BALLROOM**

NORMAN H. GARDNER, M.D., Presiding

9:00 COMMUNITY SINGING

9:05 THIS WE KNOW

Mrs. E. Arthur Underwood, D.D.S.  
President, Woman's Auxiliary  
American Medical Association  
Vancouver, Washington

9:25 PROGRESS IN THE CONTROL OF  
SOME DISEASES OF ANIMALS  
AFFECTING THE RURAL HEALTH

Martin P. Hines, D.V.M.  
American Veterinary Medical Association  
Raleigh, North Carolina

9:45 DISCUSSION

10:10 WITH YOUR APRON ON OR OFF

Mrs. Kenneth D. Schneider  
Nashville, Indiana

10:25 DISCUSSION

10:35 RECESS

10:45 IDEAS PAY OFF IN ACTION

Paul C. Johnson  
Editor Prairie Farmer  
Chicago, Illinois

11:05 DISCUSSION

11:15 RURAL HEALTH—PAST, PRESENT  
AND FUTURE

Franklin P. Murphy, M.D.  
Chancellor, University of Kansas  
Lawrence, Kansas

11:50 ADJOURNMENT





Tetracycline with Citric Acid **LEDERLE**





## Survey Reveals More Specialists

Approximately one half of the physicians in Oklahoma are full-time specialists according to a recent survey conducted by the O.S.M.A. The surprisingly high number of specialists was revealed when questionnaires asking for association directory information were tabulated.

The questionnaire ask each physician to classify himself, for directory purposes, as either a Full-Time Specialist; Part-Time Specialist; or Generalist. Out of over 1,700 questionnaires mailed, 1,292 were returned, 691 indicating the practice of a full-time specialty. Part-time specialty was indicated on 203 and 369 classified themselves as practicing general medicine. The balance of the cards returned indicated retirement.

A further breakdown revealed that Oklahoma County had over 300 specialists out of a return of 417 questionnaires and Tulsa County showed similar findings with 192 out of 251 replies showing a full-time specialty.

## Five County Physicians Honored

Five Oklahoma county physicians who together have given a total of 140 years service to the University of Oklahoma School of Medicine were among those honored December 9 at the Medical Center's third annual service pin presentation.

Doctor Mark R. Everett, dean and director, presented thirty-year pins to: Doctor James G. Binkley, professor emeritus of obstetrics; Doctor William E. Eastland, professor of radiology; and Doctor N. Price Eley, associate professor of medicine.

Doctor Minard F. Jacobs, associate professor of medicine, and Doctor Floyd W. Keller, clinical professor of pathology, were given 25-year service awards.

Thirty-one other faculty members were included in the 130 Medical Center personnel awarded five, ten, twenty, twenty-five and thirty year service pins. Ceremonies were held in the Medical School auditorium.

## What's Your Hobby, Doctor?

The DOCTOR'S HOBBY SHOW has become one of the outstanding attractions at the OSMA ANNUAL MEETING. A project of the Woman's Auxiliary, the show offers physicians an excellent opportunity to display the products of their leisure time. If you have a hobby, don't keep it a secret . . . Show your colleagues what you can do . . . APPLY NOW!

### Doctor's Hobby Show

O.S.M.A. Annual Meeting

Mayo Hotel

Tulsa

APRIL 20, 21, 22, 1959

## Application For Hobby Show Space

53rd ANNUAL MEETING

OKLAHOMA STATE MEDICAL ASSOCIATION

DESCRIBE EXHIBIT, including information as to size, shape and value (insurance is provided):

**IMPORTANT:** Deliver Exhibit to Mayo Hotel by noon, April 19. Your Exhibit will be personally attended and insured at all times. It must be picked up by noon, April 22, when management responsibility ends.

### MAIL THIS FORM TO:

Mrs. Wm. R. R. Loney, Chairman  
Doctor's Hobby Show  
2440 East 26th Place  
Tulsa 14, Oklahoma

# Have You Heard

JOHN ORBIN, M.D., has established his practice in the Village Medical Building, Oklahoma City. A graduate of the University of Oklahoma School of Medicine in 1957, Doctor Orbin has been in the military service.

HARLAN THOMAS, M.D., Tulsa physician, was recently chosen president-elect of the Tulsa Academy of General Practice.

BROADWAY CLINIC AND HOSPITAL has been announced as the new name of the Baxter Clinic and Hospital of Shawnee.

M. R. ARTHURS, M.D., Hinton, recently announced that he is moving his offices to El Reno where he will be associated with Francis Hollingsworth, M.D., in the Canadian Valley Clinic.

ORANGE W. STARR, M.D., who practiced in Drumright for 43 years before retiring in Spavinaw, Oklahoma, recently announced plans to open his offices in Talihina.

JASPER WHEELER, M.D., of Texhoma, is moving to Boise City where he will open his office in the former Hall Clinic.

WILMOT B. BOONE, Tulsa physician, is on a three-month tour of the Orient where he is studying need for people in his profession. He hopes later, to return to Southeast Asia as a medical missionary. His practice will be assumed by Charles J. Lilly, M.D.

W. F. HUDSON, M.D., has established his practice in Buffalo, Oklahoma. Doctor Hudson was discharged from military service on December 28, 1958.

## Art Center

Continued from page 100

does not move the participating heart. We learn that feelings are native to the world, and beauty too. Nature glows, a vast symbol of a vast promise. Goods are as ubiquitous as they are indigenous to the world. Art justifies hope by helping us to perceive that the world pervasively embodies satisfaction.

At its best, it seems to me, this is what art may do for us. But even in its less exalted manifestations, it pays tribute to the demand that life lays upon us. In every corner of the Art Center there will be things carefully contrived to open the mind to a world that becomes more wonderful as we learn to perceive it better. The Art Center, therefore, has an importance hard to exaggerate.

Chairman, Department of Philosophy  
Rice Institute, Houston, Texas

## Deaths

THOMAS M. BERRY, M.D.  
1874-1958

Thomas M. Berry, Eldorado physician for the past 33 years, died December 19, 1958. Born in Cynthiana, Kentucky in 1874, Doctor Berry graduated from the Kentucky School of Medicine, Louisville, in 1898.

Before moving to Eldorado, Doctor Berry practiced in Duncan and Cyril.

In 1951 Doctor Berry was recognized for his years of service to the profession when he was presented an Honorary Life Membership from the Oklahoma State Medical Association.

# Auxiliary News

## Doctor's Hobby Show

Mrs. Wm. R. R. Loney, Doctor's Hobby Show Chairman, reminds us that Doctor Diet, Doctor Quiet and Doctor Merryman were the "doctors of the year" in 1607. She emphasizes Doctor Merryman's counsel for laughter, gaiety and hobbies. Today our husbands advise their patients of the value of avocations, not only to relieve stress but to accustom oneself to pleasant activities which can be continued in later years.

Our doctor husbands should be reminded that they have an opportunity to display their hobbies at the state convention in Tulsa, April 19-22. Hobbies which do not lend themselves to exhibition, such as outdoor sports, may be displayed photographically. Other physician hobbyists should bring samples of their handiwork to the Mayo Hotel where they may be displayed on easels, tables or shelves. Previous hobby shows at the state medical convention have brought many favorable comments. Entry blanks are available from the state office.

## Midwinter Executive Board Meeting

The executive board of the state auxiliary met January 20, at the Oklahoma State Medical Association building. The major items of business included plans for Future Nurse Clubs state day, Saturday, March 14, in the auditorium of University Medical Center, Oklahoma City; exchange of ideas for observing Doctor's Day, March 30; arrangements for state convention, April 19-21, Mayo Hotel, Tulsa; discussion of proposed bylaws changes and a meeting of the nominating committee. The membership committee was in charge of the luncheon program at the Thunderbird Inn. Mrs. A. M. Brewer was in charge of arrangements.

## Doctor's Day—March 30th

The red carnation is the symbol of Doctor's Day which the auxiliary celebrates as a memorial to its doctors past and present. March 30 has been proclaimed National Doctor's Day in commemoration of the discovery of ether as an anesthetic agent for the alleviation of pain and suffering of a human being during a surgical operation. It was on March 30, 1832 that Doctor Crawford W. Long of Jefferson, Georgia, first used ether successfully. Doctor's Day was first observed in Atlanta, Georgia, in 1935, and since has been observed nationally.

## New Auxiliary Chapter

Roger-Mayes County Auxiliary was reorganized in November. The officers elected were: Mrs. Orville U. Holt, Claremore, president; Mrs. Denton B. Thomas, Chelsea, vice-president; Mrs. Robert L. Lembke, Pryor, secretary-treasurer.

The December meeting was a dinner with the medical society at Claremore. The new members are: Mrs. Wm. D. Anderson, Claremore; Mrs. Chet Bynum and Mrs. Wm. R. Bynum, Pryor; Mrs. Minor Gordon, Claremore; Mrs. Warren G. Gwartney, Pryor; Mrs. Orville U. Holt, Claremore; Mrs. Monroe R. Jennings, Claremore; Mrs. Robert L. Lembke, Pryor; Mrs. Robert M. Stover, Claremore; and Mrs. Denton B. Thomas, Chelsea.

## Southern Medical Association Auxiliary

Mrs. Elias Margo, Oklahoma City, was elected Third Vice-President of the Woman's Auxiliary to the Southern Medical Association at the annual meeting in New Orleans. Also representing Oklahoma in the Auxiliary are: Mrs. Frank L. Flack, Tulsa, Councilor, and Mrs. John C. Perry, Tulsa, Chairman, Research and Romance of Medicine.



# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association February, 1934.

#### MUSKOGEE ACADEMY OF MEDICINE

The Muskogee Academy of Medicine was organized on February 9, 1934, at Muskogee, Oklahoma with twenty active members. President, Dr. Charles E. White; Vice-President Dr. J. G. Rafter; Secretary, Dr. S. D. Neely. Board of Directors: Drs. J. Hutchings White, I. B. Oldham, C. V. Rice, F. W. Ewing and L. S. McAllister. The object of this organization is the promotion of scientific medicine in the territory of Muskogee. A program has been set for Thursday, April 5, 1934 as follows:

Dr. A. B. Chase, Oklahoma City, (1) "Pain Around The Heart"; (2) "The Thyrotoxicotic Heart"; (3) "The Heart In Relation to Anesthetics and Surgical Procedures."

Dr. John Zahorsky, St. Louis, Missouri, two subjects unannounced on pediatrics.

Dr. Willis C. Campbell, Memphis, Tennessee, (1) "Fractures in and About the Neck and Femur"; (2) "Practical Application of Orthopaedic Principles."

These three will be guest speakers of the meeting. The meeting will be at the Baptist Hospital, Muskogee, Oklahoma, beginning at 1:00 p.m., April 5, 1934, and continue until finished. Lunch will be served at 6:30 p.m., after which there will be a round table discussion. The medical profession is cordially invited to attend this meeting. There will be no charges except for lunch, probably fifty cents, to members of the profession outside the city limits of Muskogee.

#### EDITORIAL NOTES—PERSONAL AND GENERAL

Dr. LeRoy Long, Oklahoma City, spoke before the Craig County Medical Society, February 6th, on the subject of "The Bile Tract Area."

Dr. Earl D. McBride, Oklahoma City, presented a paper at the Pan-American Medical Association which met in Caracas, Venezuela in March.

Dr. C. E. Northcutt, Ponca City is President of the Ponca City Chamber of Commerce and was elected the most useful citizen for the year 1933.

Dr. Wilson H. Lane, Ada, has announced his candidacy for Mayor and Commissioner of Public Justice and Safety, subject to the city primary, in March.

Dr. McClain Rogers, Mayor of Clinton, was honored as that city's most useful citizen during 1933, at a joint meeting of the Rotary and Kiwanis clubs, in February.

## MISCELLANEOUS ADVERTISEMENTS

FOR SALE: 1 Mattern x-ray with fluoroscope and attachments, 100 M.A., excellent condition, regularly serviced by G.E.; 1 Beck Lee ECG, old model; 1 Microscope; 1 Leitz Photo-Electric Colorimeter; 1 Junior Centrifuge, practically new; various laboratory supplies. J. P. Irby, M.D., 819 E. Broadway, Altus.

BARGAINS—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-RaY Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.

GOOD OPPORTUNITY FOR YOUNG PHYSICIAN wanting to do general practice. Another physician is needed at once in this prosperous county-seat city of 3,000, with an equally-prosperous farming and ranching area surrounding it. One of the best-equipped,

mern small hospitals in the state. Long-term financing available for equipping office and remodeling it to suit the person applying. Will offer every assistance also in finding comfortable housing. Call or write Don Johnson, Secretary-Manager, Pawnee, Oklahoma, Chamber of Commerce.

WANTED: Medical Officer to work twenty hours a week in administering medical certification of airmen. Contact E. J. Anderson, Chief, Personnel Division, Civil Aeronautics Administration, P.O. Box 1689, Ft. Worth, Texas.

FOR RENT: Professional office space for two or three physicians. Reasonable rent. Plenty of off-the-street parking space. Contact James R. Ricks, M.D., 2312 N.W. 23rd Street, Oklahoma City. JA 5-7438.

WANTED: One carbon arc ultra violet therapy lamp. Needed for light research. Write or call Doctor John H. Lamb, 705 Medical Arts Building, Oklahoma City.

## PHYSICIAN PLACEMENT

### General Practice

Albert Stanley Bailey, Jr., M.D., P.O. Box 1381, Westhampton Beach, L. I., New York, age 28, married, graduated from University of Oklahoma, 1955, presently in military service, will be available May, 1959.

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

John W. Kennard, M.D., 20 Olson Lane, Fort Rucker, Alabama, age 26, married, graduated from Bowman Gray School of Medicine, 1956, presently in military service, will be available September, 1959.

James W. McDoniel, M.D., 13-B Thompson Street, Langley Air Force Base, Virginia, age 27, married, graduated from Oklahoma University School of Medicine, 1956, will be available July 1, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

John D. Wise, Booneville, Arkansas, age 30, married, graduated from University of Arkansas, 1954, veteran, available immediately.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

### Internal Medicine

Oscar C. Beasley, Jr., M.D., University Hospitals, Iowa City, Iowa, age 31, married, graduated from Vanderbilt University, 1952, veteran, will be available July 1, 1959.

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

### Locum Tenens

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

### Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

### Obstetrics and Gynecology

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

### Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Austin Leonard Gardner, M.D., 57 E. 38th Street, Indianapolis, Indiana, age 32, married, graduated from Indiana University School of Medicine, 1952, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

### General Surgery

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

### Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.



## Space Medicine

A new medical specialty, which is in every sense "far reaching," has suddenly appeared. The immediate clinical problems and research horizons of this field have suddenly been reprinted from the "annals of Buck Rogers" to more serious medical journals. Many pressing problems of space medicine were discussed at a recent symposium at the U. S. Naval Hospital in Philadelphia. This meeting was attended by several representatives of the University of Oklahoma School of Medicine, under the auspices of the MEND program, who submit the present report.

Practical applications of the giant centrifuge at the Johnsville Aviation Medical Acceleration Laboratory were described. This centrifuge, which is capable of spinning its gondola to a force of 100 G's, provides conditions of simulated flight of great value in preparing pilots of experimental aircraft. For example the X-15 has been flown more than 100 times though the ship never left the ground. It is noteworthy that many individuals have "crashed" the plane with loss of nothing except perhaps their ego. Such improvement in pilot performance has been shown that it is now predicted that the first actual flight will be successful. Valuable data have been gained in determining the human tolerances of supersonic flight.

Plans for the first flight to Mars were discussed with an air reminiscent of routing an individual between Oklahoma City and Tulsa in the days before the Turnpike. This planet was selected as the target of the first interplanetary flight because of its advantageous features of favorable orbit, atmosphere, gravitational field and temperature.

Though Mars is *only* 44 million miles from Earth at its closest pass, the route is calculated to traverse 100 million miles, requiring two years and 239 days for completion of

the round trip. This includes a wait of approximately 400 days on Mars until the relative position of the planets is suitable for return to earth.

Acceleration forces encountered during the flight are calculated not to exceed 5 to 10 G's, which can be tolerated by the human being. Perhaps of more concern is the lack of gravitational forces operative in outer space. This weightlessness presents many problems of physical and psychologic adjustment. The launching platform to be situated some 5000 miles from the earth will be in the form of a wheel which will be spun to provide an artificial gravity. Thus out will be down and in will be up. Perhaps the space ships also will be spun to provide gravitational forces as well as to equalize temperature.

A crew of 12 men has been considered optimal for the trip. The psychologic adjustment of these individuals to each other and to their odd environment in space will present great problems. They must adjust to the difficulties of working in heavy space suits or capsules which will provide a suitable micro-atmosphere as well as tolerable protection against the intense heat, cold and radiant energy which will be encountered.

A suitable artificial atmosphere for the long flight in a virtual vacuum, presents many problems. While 100% oxygen offers the advantage of reduction in pay-load it causes pulmonary irritation, alveolar collapse and other aspects of oxygen poisoning. In addition it presents a fire hazard. Controlled anoxia has been considered as a possible means of obviating these disadvantages and providing some degree of protection against ionizing radiation and explosive decompression.

Food supply for the long journey will be critical. The necessity for restriction of weight at take off would be best met by a no-residue diet. It is calculated that 22 pounds of food along with 66 pounds of oxy-



gen and 99 pounds of water will be required for each individual monthly. An associated problem is concerned with the re-utilization of wastes. For example, oxygen can be obtained from carbon dioxide by photosynthesis using algae, though this would require 90 liters of algae solution to supply sufficient oxygen for each man. Conversion of nitrogenous wastes to food stuffs must be considered. Successful elimination of noxious toxic products, particularly ammonia, must be accomplished. Recovery of water from urine has been attempted using techniques of freezing, distillation, electro-osmosis, adsorption, precipitation, ion exchange and enzyme (urease), none of which methods are entirely satisfactory. Evaporative water will be recovered by dehumidification procedures.

Provision of a satisfactory physical environment, still leaves the problem of providing such little niceties of life as night and day and the whiling away of years under weightless sterile circumstances. It is obvious that a good many pharmacologic agents, many of which are not yet available, will be necessary to make life endurable under these exceptional circumstances.

Radiation levels have been found to be extremely high (1000 times human tolerance) in the regions traversed by the explorer satellites. The degree of protection necessary for personnel beyond this zone is not known and might present another formidable problem. It is possible that polar tunnels in which radiation is minimal would provide relatively safe routes for take off and return.

These are but a few of the problems that confront space doctors.

The space engineers predict a successful manned flight to Mars within 20 to 30 years. All their calculations are based on the use of presently available material and techniques. It is conceivable that new developments might even shorten this projected schedule. The space engineers appear to assume that the biologic problems of space flight will have been met. This is the challenge which faces the space physician.—*J. W. H. Smith, M.D., R. W. Payne, M.D., P. W. Smith, Ph.D.*

## Oklahoma's Medical History

Within the life span of a man Oklahoma has progressed from frontier wilderness to the missile age. The profession of medicine in this state has kept step with this advance. Its achievements in clinical medicine and surgery; in advancement of public health; in research; and in organization, both internally through the O.S.M.A., and governmentally through our Board of Medical Examiners, parallel the advances of its sisters Agriculture, Industry, Finance and Manufacture.

The history of medicine since Oklahoma Statehood is something of which the profession may well be proud but unfortunately such a chronicle does not exist.

The Oklahoma State Medical Assistants Society recognized this void and appropriated \$300.00 in 1955 to record on tape the early day experiences of our senior physicians still alive. A considerable amount of priceless material has been assembled. This has been placed in the care of the University of Oklahoma Library. Our association has deposited its early records and *Journals* with the same custodian.

Recently the University Archivist, Doctor A. M. Gibson, a member of the University Department of History, has proposed that the medical history of Indian Territory and Oklahoma would be an admirable subject for some graduate student to develop as his doctoral thesis.

The medical assistants were enthusiastic. They offered to award a grant-in-aid to the project and expressed the hope that Oklahoma Medicine would co-sponsor the project. They envisioned that such a history might be published, all profits to be given to some charitable medical organization.

There has been some objection that such a history would (1) perhaps offend some surviving physician or relative, (2) be libelous, or (3) incur taxation of Association funds because of any book royalties accruing to it.

The Editorial Board cannot conceive that any person mature and responsible enough to be seeking a Ph.D. degree in contemporary history would play loosely with crit-

ical incidents in his thesis. Nor can it envision that the doctoral committee of the University to whom this thesis would be presented would permit the inclusion of any material of bad taste or libelous nature. If, indeed, there be any.

Finally the Board is of the opinion that should the thesis be published in book form sales would be to such a limited number of people interested in the topic that the publisher would be lucky to pay for a single edition.

In 1955 the Oklahoma State Dental Association employed a professional writer-historian to do just such a job. The result<sup>1</sup> was a well written, well printed book that affords some most entertaining and interesting reading. It is high time, now that we are half a century old, that we do the same.—J.M.

#### REFERENCE

1. Clark, J. Stanley. *Open Wider, Please*. Norman: University of Oklahoma Press 1955.

## A Basic Human Right

A patient of mine wrote the following letter to his representative to explain his own opinion and attitude toward the current issue of repeal that will come to our decision some time this year.

Doctors, as well as all other thinking citizens, must seriously consider every aspect of this vital issue which is confronting the electorate. The writer has presented a rational and lucid exposition of this problem; a presentation which is in such accord with my own thinking that I am taking this means of presenting it to others in the profession.—D. W. B.

Representative Cleta John Rogers  
House of State Representatives  
State Capitol Building  
Oklahoma City, Oklahoma

Dear Representative Rogers:

I begin this letter with extreme regret that I should have to write at all. It seems hardly consistent with free government that a citizen should have to urge his represen-

tative to vote for the recovery of a basic human right. I refer to the right to buy, possess, and drink alcoholic beverages.

It seems that prohibition of liquor leads to one of only two possible conclusions: Either government has the right to determine when its citizens would engage or refrain from the practice of something which is neither good nor evil in itself; or, if alcohol is evil in itself, it should not be tolerated under any circumstances. I think a free man would deny the first proposition because it is not the avowed function of democratic government to arbitrarily decide when its citizen shall possess or use a commodity which is neutral. And I think a God believing man would deny the second, because it implies that our Maker has created something intrinsically evil. This is predicating a contradiction in the Nature of God.

Please do not interpret this to mean that I am advocating debauchery or anarchy. On the contrary, I think every man has the obligation to exercise judgment in the use of anything, which by its misuse could bring perdition. But to say "that the misuse of a thing is evil," is a different matter from saying "the use of a thing is evil."

The logic of this view does not propose (as some would contend) that the indiscriminate use of narcotics would be justified. The use of narcotics is no more evil in itself than liquor, but becomes so when misused. And to insure against its misuse the prescription of a medical doctor is necessary. By so restricting, government is simply maintaining that doctors, due to an esoteric knowledge of medicine have superior judgment in determining what will be the predicted results of this usage.

Such is not the case with liquor. Any intelligent man with normal judgment should know, and is obligated in conscience to know, when he can or cannot take a drink without harmful effects. To say that we must restrict all because of the bad judgment of a few, is analogous to saying, "we must not allow citizens to vote because some will use bad judgment."

I urge you to use your influence to abolish

(Continued on Page 206)



## The Problem of Perinatal Morbidity and Mortality

An outline for implementing a program  
to study and do more about perinatal  
morbidity and mortality.

DR. MARTHA ELIOT<sup>1</sup> has stated that "Death is associated with birth and being born in the United States more often than it is with any disease except heart disease, cancer and cerebral hemorrhage." Recent national statistics show a continuous and significant decrease in maternal deaths, whereas the rate of decrease of neonatal deaths is proportionately much less. Because these deaths are among the most tragic since they cut off life at its beginning, and because the infant mortality rate is generally recognized to be one of the best single indices of a given community's health status, it is essential to examine the problem of perinatal loss more carefully. Furthermore, mortality is not the whole toll in childbearing and being born. The aftermath for the mother may be chronic illness or repeated reproductive failure. For the infant it may be irreparable damage as manifested by congenital malformations, cerebral palsy, mental retardation and epilepsy.

The term "perinatal," as used here, embraces the interval between the end of the twentieth week of fetal life and the twenty-seventh day after birth.

For too long, however, late fetal and early neonatal deaths have been considered separately. To approach the heart of the problem, the whole problem of reproductive wast-

HARRIS D. RILEY, Jr., M.D.

Harris D. Riley, Jr., M.D., is Professor and Chairman, Department of Pediatrics, at the University of Oklahoma School of Medicine. He graduated from Vanderbilt University in 1948. Doctor Riley served on the Pediatric Service at Vanderbilt University Hospital and was Assistant Medical Director of the Poliomyelitis Center at Vanderbilt.

Doctor Riley served as consultant to Air Force and Army Hospitals in Tennessee and Kentucky as well as to the Middle Tennessee Tuberculosis Hospital and the National Foundation for Infantile Paralysis. He was also Chairman of the Rheumatic Fever Committee of the Middle Tennessee Heart Association. He is certified by the American Board of Pediatrics.

*This paper is from the Department of Pediatrics and The Children's Memorial Hospital of the University of Oklahoma Medical Center, Oklahoma City, Oklahoma.*

age must be considered. This includes, in addition to perinatal deaths, ectopic gestations and early fetal deaths (abortions). Although the scope of reproductive wastage can only be estimated, it is very likely that the total number of fetal deaths is more nearly 500,000 annually than the 75,000 to 80,000 which are reported.<sup>2</sup> Including the sublethal continuum characterized by cerebral palsy, mental retardation, and similar handicaps, Anderson<sup>3</sup> concluded that total



human reproductive failure in the United States approached 800,595 losses in 1950 when the total births were 31,622,411. In 1957 this estimate rose to 883,200.<sup>4</sup> Reproductive failure ranked above the three leading causes of death in the United States in 1950. Thus, perinatal loss is a problem that concerns physicians, nurses, public health workers, and, through its impact upon our socio-economic status, political scientists, nutritionists, economists, sociologists, and the general public. It is important that the cooperative efforts of all concerned at the various levels be coordinated in attacking this problem.

Through the years, tremendous progress has been made in saving lives of infants. Mortality rates for infants under one year of age in Oklahoma in 1957 was 25.5 per 1,000 live births, 37 per cent of what it was only thirty years ago. However, the larger part of this reduction has come about in the one to eleven month age group where the causes of mortality were more readily susceptible to control measures. A comparison

in the reduction in mortality under one month of age and one to eleven months of age reveals that the 1957 neonatal mortality rate of 18.2 is still 50.3 per cent of what it was in 1928, while the one to eleven month mortality rate of 7.3 is only 22.3 per cent of that in 1928.<sup>9</sup> Such figures make it readily apparent that the first month of life is the critical period of time for the prevention of death. Most physicians interested in problems of the newborn infant and his survival agree that an irreducible minimum in neonatal or perinatal mortality has not been reached.

For these reasons attention is being focused on this problem in Oklahoma. Through a cooperative program\* between the Maternal and Child Health Division of the State Department of Health and the University of Oklahoma School of Medicine an organized approach to the problems of the perinatal period is being made.

\*Supported by a grant from the Oklahoma State Department of Health.

TABLE 1

Classification of Perinatal Death (Infants 1000 Grams and Over) Johns Hopkins Hospital, 1937-1943 (2)

Cause of Death	Fetal Deaths	Neonatal Deaths	Perinatal Deaths	
			Number	Per Cent
Anoxia.....	249	102	351	33.7
Placenta.....	92	40	132	
Cord.....	35	10	45	
Maternal Complications.....	27	9	36	
Complications of Labor.....	66	20	86	
Other.....	29	23	52	
No Abnormal State.....	228	106	334	32.0
Without Maternal Disease.....	169	84	253	
With Toxemia.....	45	13	58	
Other Acute or Chronic Disease.....	0	3	3	
Diabetes.....	14	6	20	
Birth Injury.....	24	78	102	9.8
Malformation.....	42	56	98	9.4
Abnormal Pulmonary Ventilation.....	0	74	74	7.1
Infection.....	10	48	58	5.6
Syphilis.....	7	6	13	
Other Infection.....	3	42	45	
Erythroblastosis.....	6	11	17	1.6
Other Conditions or Causes.....	8	1	9	0.8
TOTAL.....	567	476	1,043	100.0

In order to attack this problem we must first study the chief causes of death. When total perinatal loss is considered, anoxia is responsible for more deaths than any other etiologic factor. Table 1 shows the multiple and heterogeneous causes of anoxia. However, it is readily apparent that most of these factors operate before or during birth. Mortality rates and causes in the neonatal period are shown in Table 2. Prematurity, postnatal respiratory problems, birth injuries, congenital malformation and hemolytic diseases of the newborn are the chief causes of death.<sup>12</sup> These conditions nearly all have their origin before or during birth and in many cases are associated with morbidity in the mother.

How can we attack the problem of carrying infants safely through the perinatal period? Careful analyses have shown that 35 per cent of perinatal deaths are preventable.<sup>7</sup> It should be recalled at this point that our attention should be directed toward the problem of human reproductive failure or wastage rather than solely to deaths in the first 28 days of life. More and more evidence is accumulating that the same conditions that bring death to infants before, during and soon after birth also may lead to chronic illness and handicap in many infants who survive. An accurate figure as to how many children may suffer such results is not available, but a rough estimate is that approximately 315,000 children have cerebral palsy, 310,000 have epilepsy and 1,-

TABLE 2

Neonatal Mortality Rate per 1,000 Live Births by Age and Main Causes of Death, United States, 1955\* (1)

Cause of Death	Neonatal Death Rate**		
	Total	Under 1 Wk.	1-3 Wk.
All causes . . . . .	19.1	17.0	2.1
Certain diseases of early infancy . . . . .	15.4	14.2	1.2
With immaturity . . . . .	11.4	10.8	0.6
Without mention of immaturity . . . . .	4.0	3.4	0.6
Immaturity unqualified . . . . .	5.2	5.0	0.2
Postnatal asphyxia and atelectasis . . . . .	4.3	4.1	0.2
Birth injuries . . . . .	2.9	2.8	0.1
Pneumonia of newborn . . . . .	0.8	0.4	0.4
Hemolytic disease of newborn (erythroblastosis) . . . . .	0.6	0.6	0.0
Neonatal disorders arising from maternal toxemia . . . . .	0.1	0.1	0.0
Hemorrhagic disease of newborn . . . . .	0.2	0.2	0.0
Diarrhea of newborn . . . . .	0.1	0.0	0.1
Other and ill-defined diseases of early infancy, including nutritional maladjustment . . . . .	1.2	1.0	0.2
Congenital malformations . . . . .	2.5	1.9	0.6
Influenza and pneumonia (except pneumonia of newborn) . . . . .	0.0	0.0	0.0
All other diseases of respiratory system . . . . .	0.3	0.3	0.0
All infective and parasitic diseases . . . . .	0.1	0.0	0.1
Gastritis, duodenitis, enteritis, and colitis (except diarrhea of newborn) . . . . .	0.0	0.0	0.0
Accidental mechanical suffocation in bed or cradle . . . . .	0.0	0.0	0.0
All other accidental causes . . . . .	0.1	0.1	0.0
Other specified conditions . . . . .	0.4	0.3	0.1
Symptoms and ill-defined conditions . . . . .	0.3	0.2	0.1

\*Exclusive of fetal deaths  
 \*\*Under 28 days

500,000 mental retardation. Something like 285,000 infants with congenital malformations are born each year.<sup>1</sup>

With these facts in mind, we can outline some of the basic needs in a preventive program concerning perinatal loss.

1. *Better understanding of the reproductive process calls for many different approaches.*

There is need for continuation of animal research and its application of these findings to human pathology. This can best be gained by multidisciplinary approach with participation and utilization of contributions from genetics, chemistry, biophysics, enzymology, microbiology and other biological sciences.

2. *Improved prenatal care, especially among those patients most likely to neglect this important aspect of obstetrical care, is of paramount importance.*

In addition to attention to economic barriers which may prevent prenatal care, education of the pregnant woman of the teratogenic hazards of the early months of pregnancy must be accomplished.

Another approach lies in pathological, clinical and laboratory correlations of untoward conditions during pregnancy with follow-up studies of surviving infants. For example, very little is known concerning the causes of bleeding in early pregnancy and the effect on the fetus. As already mentioned, there is a tremendous void in our knowledge of the significant events associated with premature labor. While there has been a striking reduction in the maternal mortality rate (between 1915 and 1955 maternal deaths have been reduced from 60 to 5 per 10,000 live births), it has become apparent that many illnesses occurring in the mother during pregnancy may be sublethal as regards the fetus resulting in viable but handicapped infants.

3. *Concentration of attention on babies who are in difficulty at or soon after birth and specialized care of conditions which*

*commonly cause death in the neonatal period.*

Over half of the neonatal deaths (52 per cent) occur during the first day of life, 39 per cent in the first week, 6 per cent in the second, 3 per cent in the third, and the remaining 2 per cent in the last week of the neonatal period. Of the 69,153 fetal deaths recorded in 1955 in pregnancies of 20 or more weeks, 32 per cent were in those reported as enduring 40 or more weeks.<sup>1</sup>

Thus, it is quite clear that if perinatal mortality is to be reduced, more attention should be devoted to the first three days after birth.

In order to focus attention on newborn infants with difficulty from the moment of birth, some centers have adopted an objective standardized method of assessing and recording the baby's condition at birth.<sup>11</sup> On the basis of such a program, a specialized treatment unit staffed around the clock by trained nursing personnel, continuous pediatric coverage, and with all necessary emergency diagnostic and treatment facilities such as recovery rooms in modern operating room areas is desirable.

4. *Early recognition of infection.*

Neonatal infections may be acquired in utero or may originate in the postnatal period. Recognition is often difficult but must be prompt if there is to be hope of survival or prevention of dissemination to other infants. There must be a high index of suspicion of infection in any newborn infant who is listless, eats poorly, has respiratory difficulty or has jaundice in the presence of some or all of the foregoing symptoms. Since differential diagnosis is difficult in the first two or three days of life, treatment should be initiated as soon as the necessary diagnostic procedures (blood and other cultures, etc.) have been obtained. Judicious use of antimicrobial agents based on the probable offending organism is essential.

Staphylococcal infections in newborn nurseries have become a major problem in recent years.<sup>10</sup> The importance of detecting



carriers among personnel as well as among infants cannot be overemphasized.

5. *Prompt recognition and treatment of hemolytic disease and posthemorrhagic states of the newborn.*

In order to prevent deaths and kernicterus, the diagnosis of erythroblastosis must be anticipated. In addition to adequate prenatal screening procedures (blood grouping and typing, antibody determinations, etc.), deliveries in which erythroblastosis in the infant is anticipated should be conducted in hospitals equipped to manage such infants. Nurses should be educated that jaundice occurring in the first 24 hours after birth is in most cases abnormal and physicians must remember that erythroblastosis can result from major group (ABO) as well as Rh incompatibility. The efficacy of exchange transfusion is now well established and is an important means of reducing morbidity and mortality in this disease.

Many physicians are not aware of the problem of posthemorrhagic shock in the newborn. However, it can be anticipated since it most commonly occurs in infants born by cesarean section, and in association with multiple births. These infants are usually live-born and are salvageable by prompt replacement therapy.<sup>6</sup>

6. *Prevention of prematurity.*

The premature infant accounts for 50 to 75 per cent of our neonatal mortality rate. At least three out of five neonatal deaths are in infants whose mothers' pregnancies do not run to normal term. Premature delivery increases the risk of death in the newborn period twenty times.<sup>1</sup> These figures will not show any appreciable change until obstetricians discover why apparently normal pregnancies terminate prematurely. Judging by the data on birth weights, little gain has been made in preventing premature births. In fact, in New York City, between 1948 and 1955, there has been a statistically significant increase in the number of premature births.<sup>5</sup> Fundamental advances in our knowledge of the physiology of the pre-

mature infant's respiratory, vascular and absorptive mechanisms must also be made. Until this occurs, no physician can claim any special technique which will reduce further the loss from hyaline membrane disease, atelectasis and intraventricular hemorrhage. Neither can he alter the immature stage of organ development which is part of prematurity itself.<sup>11</sup>

Understanding of the total causation of prematurity would be furthered by socioeconomic as well as medical research. Poor nutrition and other outgrowths of socioeconomic inadequacy contribute to prematurity. There is a continued need for research in endometrial insufficiency, physiology of the uterus, habitual abortions and the structure and physiology of the placenta.

A reduction in prematurity would not only significantly reduce perinatal mortality but also the incidence of chronically handicapped children since the incidence of congenital malformations and cerebral palsy is significantly higher in premature as compared to full-term infants.<sup>8</sup>

7. *Other basic problems that need to be solved in order to further reduce deaths are:*

A. Further knowledge of the respiratory distress syndrome, especially that associated with hyaline membrane disease.

B. Earlier recognition of fetal distress. Fetal distress is usually related to anoxia. It is likely that early recognition will depend on improvements in fetal electrocardiology, fetal electroencephalography and more adequate study of placental physiology.

C. A more adequate understanding of the causes of congenital malformations.

8. *More accurate diagnosis of cause of death.*

Too many physicians feel that nothing can be learned from autopsy studies of fetal or neonatal deaths. Nothing could be further from the truth. Many of the advances that have been made in neonatal medicine have stemmed from autopsy studies. As careful

pathological data is accumulated the number of cases in which no specific cause of death can be assigned narrows rapidly. It is important for pathologists not only in large medical centers but in hospitals to develop interest and experience in conducting thorough necropsy studies of perinatal deaths.

#### 9. *Increase in well trained personnel.*

There is an urgent need for re-emphasis in the curriculum of the problems of the perinatal period. This should start with the medical student, but particular emphasis should also be given to the intern and resident staff.

There is also a great need for increase in skilled nursing personnel to care for newborn infants, both full term and premature. In the care of premature infants nothing approaches the value of a well trained and experienced nurse.

#### 10. *Improved nursery facilities for both full-term and premature infants.*

Needless to say, the salvage rate among small premature infants can be increased only if proper and adequate facilities are available. This includes the entire organization and structural layout of the newborn nurseries, provision for adequate oxygen and humidification equipment, resuscitation equipment among others. There appears to be many bona-fide reasons to re-evaluate our present concepts of the geographical and physical requirements of newborn nurseries.

#### 11. *Improvement in medical records.*

Improvement in the medical records of both the mother and infant is needed for more adequate analysis of the perinatal problem. This includes careful questioning concerning illnesses and possible insults during pregnancy, the inclusion of social and economic factors and an adequate recording of the infant's status and course from birth.

#### 12. *Coordination of the medical and*

*paramedical team and the conduct of regular staff meetings.*

It is readily apparent that reduction in perinatal loss is not the sole responsibility of any one medical specialty and better teamwork between workers in the field—general practitioners, obstetricians, pediatricians, pathologists, anesthesiologists, public health workers, hospital administrators, and others—must be achieved. This can often be effected through a well organized perinatal conference. This meeting provides an opportunity for the “team” to sit down together and review case histories—actual occurrences in their own hospitals—where infants died or did not do well. Other specialists with knowledge of physiology, genetics, microbiology, and others can be brought in as indicated.

### Summary

The significance of perinatal morbidity and mortality as a health problem is reviewed. Suggestions concerning prevention and management of these problems are outlined.

### REFERENCES

1. Eliot, M. M.: Deaths around Birth—the National Score. *J.A.M.A.* 167: 945, 1958.
2. Nesbitt, R. E. L.: *Perinatal Loss in Modern Obstetrics*. Philadelphia, F. A. Davis Co., 1957.
3. Anderson, G. W.: Current Trends in the Pathology of Reproductive Failure. *Am. J. Pub. Health.* 45: 1259, 1955.
4. Anderson, G. W.: Research on Reproductive Wastage. *Am. J. Pub. Health.* 47: 1542, 1957.
5. Baumgartner, L., and J. Pakter: Challenge of Fetal Loss, Prematurity, and Infant Mortality—Assessing the Local Situation. *J.A.M.A.* 167: 936, 1958.
6. Riley, H. D., Jr., and H. N. Kirkman: Posthemorrhagic Anemia and Shock in the Newborn. To appear in *Pediatrics*.
7. New York Academy of Medicine: *Perinatal Mortality in New York City, Responsible Factors: Study of 995 Deaths*. Cambridge, Mass., Harvard Univ. Press, 1955.
8. Wallace, H. M., L. Hoenig, and H. Rich: Newborn Infants with Congenital Malformations or Birth Injuries. *A.M.A.J. Dis. Child.* 91: 529, 1956.
9. Division of Vital Statistics, Oklahoma State Department of Health.
10. Riley, H. D., Jr.: Epidemiological Studies of Staphylococcal Disease in Newborn Infants. In preparation.
11. Medovy, H., and J. H. Briggs: Reduction in Neonatal Mortality: The Present and the Future. *Pediat. Cl. No. Amer.* 5, p. 259, May 1958.
12. Bundesen, H. N., E. L. Potter, W. I. Fishbein, F. C. Bauer, and G. V. Plotzke: Progress in the Prevention of Needle Deaths, Annual Report of the Chicago Health Department, 1951.

800 N.E. 13th, Oklahoma City, Oklahoma

# The Use of a New Surfactant (Superinone\* ) With a Purified Hemicellulose in the Treatment of Chronic Constipation

**ALTHOUGH** GENERALLY CONSIDERED as a relatively simple ailment to the physician, constipation may present itself as a very disturbing condition to the patient. The latter, because of misunderstanding, is often disturbed more by a delay in what he believes to be an essential time interval between bowel movements than he is with the condition per se.

Since constipation, unless due to an organic disorder, is neither difficult to manage nor likely to present serious symptoms, a simple non-drastic medication to assist the patient is the preferred method of management. Irritating or harsh laxatives or cathartics are generally not indicated and indeed may be harmful in the sense that they produce an unnatural bowel response and tend to focus undue attention upon bowel activity which may have already caused the patient unnecessary concern.

One of the most frequent causes of constipation is the failure to develop a proper bowel habit pattern or to include foods in the diet which tend to promote adequate and regular bowel activity. For this reason, a simple, gentle, bulking and softening agent offers the patient a natural remedy. We

**A. R. STOUGH, M.D.**

Since graduating from the University of Tennessee College of Medicine in 1936, A. R. Stough, M.D., practiced in Oklahoma City and Tecumseh before locating in McAlester. He is engaged in general practice, with a special interest in Urology.

Doctor Stough is a member of the South Central Section of the American Urological Association and the American Society of Clinical Hypnosis.

have recently had the opportunity to study two preparations of this type. A description of each and their mode of action is given below.\*\*

Mucilose-Super flakes differs from the powder in that it does not contain dextrose and therefore yields more Mucilose per unit weight.

Mucilose is a highly purified hemicellulose prepared from psyllium seed with an affinity for fluid which gives it a characteristic bulking property. This coupled with its emollient action brings about a gentle stimulus to a normal peristaltic response.<sup>1</sup> Agents of this type have been extensively employed clinically for many years.<sup>2-6</sup> The bland and emollient<sup>7</sup> nature of Mucilose is highly desirable, particularly in the presence of an irritable or spastic bowel. It should be noted, how-

\*Trademark, brand of tyloxypal.

\*\*The material used in this study was supplied by the Medical Research Department of Winthrop Laboratories, New York.



# Results Observed in a Group Treated With Mucilose-Super Powder

No. of Pts.	Age (yrs.)	Dose (tsp.)	Duration of Rx	Onset of Effect in Hrs.					Satisfactory	Unsatisfactory
				4-6	5-6	6-8	8-10	8-12		
24	30-57	1-2 b.i.d.	5 days	3	3	16	2	1	22	2*

\*Loose stool felt to be due to excessive dose of the preparation in these two patients.

ever, that the bulking tendency of the colloid makes it necessary to administer an adequate amount of water with and following the preparation to promote its passage into the small bowel.<sup>8</sup> If too little fluid is taken, an unduly mucilagenous mass may result.

Superinone, the other active ingredient in each preparation, being a surface active agent, lowers surface tension which facilitates its permeation of the hardened stool. Its emulsifying quality tends to bring about a more thorough mixing of intestinal fluid with fecal content, adding to the softening action upon stool. Finally, the low toxicity of this compound<sup>9,10</sup> added to its gentle and natural-like action gives it a wide field of usefulness in various types of constipation when combined with a demulcent hydrogel such as Mucilose.

## Method and Materials

To carry out this study 101 chronic or periodically constipated individuals were chosen from an institutionalized group. All were adult males. A uniform schedule of administering Mucilose-Super powder or flakes over a period of five days in a dose of one or two teaspoonsful twice daily after meals (except in two cases) permitted a fairly comparable means of assessing the onset of effect in each individual.

Each dose of the preparation was administered with 14 ounces of water. A record of results included the degree of efficiency of the compound in producing adequate bowel movement, time required to act, type of stool obtained, and side effects if these were experienced.

## Results

Of 24 patients who received the preparation containing dextrose during the study

period, all but two obtained satisfactory bowel elimination without cramping or flatulence.

Although two patients noted a watery-type stool during the course of therapy, this was not severe and probably could be attributed to the fact that no attempt was made to adjust dosage in accordance with patient response within the five-day test period. The remainder of the group obtained either a normal or somewhat softened stool during the period of observation.

As noted in the table above the majority of patients reported that it required six to eight hours for the preparation to act, however, a few found that eight to 12 hours elapsed before a response occurred. This delay in the onset of effect of the preparation was considered to be one of its favorable attributes.

Of the remaining 77 patients of the total group, a satisfactory response over approximately the same time intervals was obtained in 74.

Side effects occurred in a higher percentage in this group, however, these were of a minor gastrointestinal character. The fact that the dose and length of the study were standardized during the investigation could in large measure account for this.

## Discussion

In the present study two new demulcent stool softeners were evaluated in a group of patients with constipation primarily of the chronic type. Since poor bowel habit is likely to have been the basic cause of difficulty in these individuals, an atonic form of the condition was suspected in most. This is further indicated by the fact that abdominal discomfort characteristic of an hypertonic

or spastic type was not a presenting complaint.<sup>11</sup>

We were impressed with the manner in which Mucilose-Super powder produced its clinical effect with a minimum of untoward complaints, in overcoming the main problem of true constipation, namely, the hard and dry nature of the fecal material.

The preparation was able to improve the consistency of the stool gently and within a practical period after treatment was begun. A preparation which allows such a time lapse will in most instances avoid any interference with the usual daily routine of the patient. The occurrence of a loose stool in two individuals would, no doubt, have been avoided if the daily dose had been reduced before the end of the five-day test period. It is significant that this compound causes no drastic or irritating effect upon the bowel, which suggests it as being suitable as a gentle bulking and softening agent for a variety of individuals, such as:

1. The chronically ill
2. The elderly
3. The postoperative (intestinal stoma, etc.)
4. The pregnant
5. Those on diets which offer suboptimal fecal residue or bulk.

Although a greater incidence of complaints were reported with Mucilose-Super flakes, bowel evacuation was highly satisfactory in 96 per cent of the group. It should be remembered that since this preparation contained no dextrose, double the amount of Mucilose per dose was received while the amount of Superinone was the same as in the group who were given the powder. Had the dosage schedule been adjusted we would, no doubt, have been able to avoid for the most part the gastrointestinal discomfort experienced by a number of those given the flakes. This appears to be true since another study by A. Cohen<sup>12</sup> wherein 35 adult patients were treated with a smaller dose. There were no untoward effects. Such variations indicate once more that in the management of constipation with any prepara-

tion, individual consideration must be given to each patient to obtain the most nearly physiologic response.

The mechanism of action of these Mucilose-Super preparations offer other advantages than providing a physiologic-like bowel evacuation. Since they are not hypertonic salts, they do not draw upon systemic fluids in a manner which might cause dehydration. Nor will the preparations produce an electrolyte imbalance. The fact that the action is not immediate nor drastic prevents any interference with digestion of vitamin absorption and finally, it is of particular importance to note that since this type of preparation tends to bring into play normal bowel function, the need for continuous therapy is avoided.

Insofar as dosage of the preparations is concerned, we were able to determine that for the powder a dose of one or two teaspoonsful twice daily given with water (followed by a second glassful) is well tolerated, and that after three to four days a gradual reduction of dosage is advisable. A similar schedule for the flakes except to be given once daily, seems preferable from our study. For maintenance, either of the preparations may be given on alternate days or used as needed to facilitate regularity.

### Summary

1. Twenty-four severely constipated adult individuals were treated with a new bulk producing and stool softening agent (Mucilose-Super powder) for a test period of five days. A group of 77 patients were similarly treated with Mucilose-Super flakes. The two compounds are comparable except that the former has half of the mucilose replaced with dextrose.

2. The preparation, Mucilose-Super powder, produced a gentle, natural-like evacuation in all except two patients. After a few days therapy the exceptions developed a watery-type stool, which could have been avoided if the dosage schedule had been modified according to individual response. The flakes produced a 96 per cent good response of bowel evacuation but caused a higher incidence of temporary minor gastrointestinal

complaints. It is believed here also that had the dosage schedule been altered these complaints could have been markedly reduced.

3. One or two rounded teaspoonsful of the powder given twice daily after meals with two glasses of water is a satisfactory initial dose. As regularity and proper stool consistency is obtained, the dose may be reduced or used only as needed. A single daily dose for Mucilose-Super flakes seems preferable. Response to both Mucilose-Super preparations occurred in about six to eight hours in most of the patients studied.

4. Various conditions in which constipation may be present are mentioned and the suitability of this new form of laxative preparation for these disorders is discussed.

#### BIBLIOGRAPHY

1. Tainter, M. L. and Buchanan, O. H.: Quantitative comparisons of colloidal laxatives, *Ann. N. Y. Acad. Sc.* 58: 438, July 15, 1954.

2. Ivy, A. C. and Isaacs, B. L.: Karaya gum as a mechanical laxative: an experimental study on animals and man, *Am. J. Digest. Dis.* 5: 315, July, 1938.

3. Fluckiger, F. A. and Hanbury, F. R.: *Tragacantha*. Pharmacographia, London, MacMillan and Co., 1874.

4. Stein, D. and Gelehrter, J.: Effects of hydrogels on the configuration and functions of the colon: preliminary study, *Rev. Gastroenterol.* 7: 39, Jan.-Feb., 1940.

5. Block, L. H.: The management of constipation with a refined psyllium combined with dextrose, *Am. J. Digest. Dis.* 14: 64, Feb., 1947.

6. Cass, L. J. and Wolf, L. P.: A clinical evaluation of certain bulk and irritant laxatives, *Gastroenterol.* 20: 149, Jan., 1952.

7. Drill, V. A.: *Pharmacology in Medicine*, New York, McGraw-Hill Book Company, Inc., 1954, p. 44 10.

8. Goodman, L. S. and Gilman, Alfred: *The Pharmacological Basis of Therapeutics*, ed. 2, New York, The Macmillan Co., 1955, p. 1059.

9. Data in the files of the Department of Medical Research, Winthrop Laboratories.

10. Heatley, N. G., Gowans, J. L., Florey, H. W. and Sanders, A. G.: Effect on experimental tuberculosis and other infections of mucrococcin-triton solution, *Brit. J. Exper. Path.* 33: 105, Apr., 1952.

11. Cecil, R. L. and Loeb, R. F.: *A Textbook of Medicine*, ed. 9, Philadelphia, W. B. Saunders, 1955, p. 881.

12. Cohen, A. R.: Personal Communication.

Medical Arts Building, McAlester, Oklahoma

**ACCOMPLICE, N.** One associated with another in a crime, having guilty knowledge and complicity, as an attorney who defends a criminal, knowing him guilty. This view of the attorney's position in the matter has not hitherto commanded the assent of attorneys, no one having offered them a fee for assenting.

**ADMINISTRATION, n.** An ingenious abstraction in politics, designed to receive the kicks and cuffs due to the premier or president. A man of straw, proof against bad-egging and dead-catting.

*From the Devil's Dictionary by Ambrose Bierce*

—Sagamore Press, Inc.





# Possible Mechanisms of Actions of Digitalis in Cardiac Muscle

CHARLES H. FARR, Ph.D.

## Generalized Effects

The beneficial effect of cardiac glycosides upon the failing heart has been clinically recognized for many years. Extensive investigation of chemical and biological properties of these compounds has revealed very little information about their mode of action. The general statement: "The main pharmacodynamic property of digitalis is its unique ability to increase the force of myocardial contraction,"<sup>1</sup> is the text book summary of the findings elaborated from this research.

Cardiac glycosides are unique among drugs for cardiotonic properties but their physiological properties are not restricted to the cardiac muscle. "In vivo" kidney perfusion studies have revealed that digitalis has a direct effect upon the kidney to produce diuresis.<sup>2</sup> Previously, diuresis that occurred with digitalis administration in congestive

Charles H. Farr, Ph.D., graduated from the the University of Oklahoma in 1957 and is presently enrolled as a second year medical student.

Doctor Farr is a member of the Society of Experimental Biology and Medicine, the American Association for Advancement of Science and the Oklahoma Academy of Science.

heart failure was thought to be a result of the improved hemodynamics.

A positive inotropic effect, increasing force of contraction, has been demonstrated on normal ventricle strip preparations in bicarbonate buffer with concentrations of ouabain as low as 0.1 mcg/ml of buffer solution.<sup>3</sup> The mechanism by which this inotropic effect is produced has been the subject of much argument based upon generous quantities of contradictory experimental evidence.

## **Influence on Action Potentials**

The influence of cardiac glycosides on electrical activity of normal cardiac tissue has been adequately discussed elsewhere.<sup>4</sup> Interestingly, therapeutic doses of digitalis do not have a demonstrable effect on the resting potential of cardiac fibers.<sup>5</sup> However, action potential changes have been reported in slightly greater concentrations. The action potential of the sino-auricular node tissue is not changed but the action potential of non-sino-auricular node atrial tissue has been found to be prolonged.<sup>6</sup> Conversely, the action potential of normal ventricular tissue is shortened by digitalis action.<sup>7, 8</sup> An increased rate of repolarization has been demonstrated in Purkinje fibers.<sup>9</sup> Data for other tissue components of heart is not available.

## **Chemical Changes Following Digitalization**

Chemical changes in normal cardiac tissue after digitalization are more variable than effects on electrical activity.

Boyer and Poindexter<sup>10</sup> reported an increase in potassium ions in heart muscle after digitalization. Rebar<sup>11</sup> also found that small doses of digitoxin would increase the potassium content, but non-toxic doses administered as often as four times daily induced a decrease. They postulated that these results may be due to a differential inhibition of potassium entry across the cell membrane. Holland and Dunn<sup>12</sup> reported that digitoxin profoundly effects the membrane permeability of intact cells to sodium and potassium but did not alter membrane permeability of mitochondria. However, other studies<sup>13, 14</sup> failed to detect any changes in potassium content following digitalis. Garb<sup>15</sup> reported that in isolated cardiac muscle fibers changes in potassium concentrations of 3.5 and 8.5 millimols/liter did not reduce the inotropic action of ouabain. However, the onset of toxic arrhythmias could be delayed or prevented by increasing the potassium concentration.

## **Effects on Cardiac Tissue Metabolism**

Cardiac glycoside data of effects on phosphate, lactate and glycogen metabolism are somewhat conflicting. The basic approach

used for studying these systems has been to determine the effects of cardiac glycosides on enzymes thought to be involved in their metabolic pathways.

Oxidative phosphorylation of isolated cardiac mitochondria from digitalized and normal animals has been studied.<sup>16</sup> No difference in efficiency of oxidative phosphorylation could be observed between treated and untreated animals. It was concluded that digitoxin does not affect energy-generating mechanisms of normal heart mitochondria. Wollenberger<sup>17</sup> also demonstrated that when an animal has been given sufficient cardiac glycoside to cause arrhythmias there is no measurable change in high energy phosphate content which would be attributed to a direct metabolic effect of the drug.

Oxygen consumption rate of a tissue is reported to be a function of the concentration of inorganic phosphate and phosphate acceptors.<sup>18</sup> Therefore, a decrease in concentration of labile phosphates, implying a rise in the concentration of inorganic phosphate and phosphate acceptors would be expected to stimulate oxygen consumption. Wollenberger<sup>19</sup> found that the concentration of labile phosphate was lowered in myocardium in response to a large increase in arterial resistance and pressure. However, this was not due to increased work because increased cardiac output (systolic output increased—rate remains constant) without a major rise in arterial pressure does not cause a depletion of labile phosphates. A possible explanation comes from a study reporting that breakdown of phosphocreatine is greater in isometric than isotonic contraction.<sup>2</sup> Therefore, expenditure of phosphate bound energy would be chiefly in overcoming resistance against contraction.

Non-toxic doses of cardiac glycosides lower phosphocreatine and raise lactate levels significantly in dog ventricle muscle. Glycogen is usually decreased whereas adenosine polyphosphate and inorganic phosphates show no significant change.<sup>11</sup> An increased rate of turnover of high energy phosphate and glycogen by non-toxic doses of cardiac glycosides has been suggested from these results.

Ventricular strain can be experimentally induced by the surgical production of supra-valvular stenosis.<sup>21</sup> Although anatomical changes occur within the myocardium, it is not surprising that there are no accompanying metabolic changes which will respond to digitalization.<sup>22</sup> Ferrer<sup>22</sup> found that in the absence of myocardial damage, i.e., metabolic alteration within the myocardium, patients suffering from mitral stenosis with a mechanical block only were not benefited by digitalization.

Every practicing physician is familiar with the dramatic effects of digitalization of patients suffering with congestive heart failure. It becomes apparent from experimental evidence that the effects of cardiac glycosides on normal cardiac muscle or pure heart failure induced by mechanical block are in no way analogous to the drugs' mode of action in heart failure with accompanying metabolic changes of myocardial damage.

#### **Effects on Skeletal Muscle**

Some effects of the glycosides on normal cardiac muscle have been demonstrated in skeletal muscle as well.

A positive inotropic action of ouabain in a concentration of 0.5 mcg/ml was reported by Faust<sup>3</sup> on diaphragm muscle strips in bicarbonate buffer medium. Higher concentrations rapidly depressed the force of contraction. Edman<sup>24</sup> could not demonstrate an inotropic effect with ouabain,  $10^{-6}$ M, on ATP-induced contractions of glycerinated muscle fibers. When calcium,  $10^{-3}$ M, was added to the preparation, an inotropic effect was noted but calcium alone had no effect. Lanatoside C substituted for ouabain at the same concentration would approximate the same degree of inotropic effect.

Skeletal muscle paralysis has been seen to occur in the neck and hind legs of guinea pigs when toxic and sub-toxic levels of cardiac glycosides were reached as determined by development of arrhythmias.<sup>3</sup> Skeletal muscle paralysis has also been reported in the neck and legs of rats.<sup>25</sup> Respiratory paralysis frequently occurred prior to cardiac arrest in rats<sup>26</sup> and guinea pigs<sup>27-30</sup> when toxic doses of cardiac glycosides were ad-

ministered. Decreased work ability of dogs on a treadmill following digitalis administration was seen by LaDue.<sup>31</sup> He also reported that a patient demonstrated marked skeletal muscular weakness after digitalis intoxication.

The inotropic effect of cardiac glycosides has been reported in normal cardiac and skeletal muscle. No significant effects of these drugs on metabolic pathways in normal muscle have been found. The glycosides failed to ameliorate pure heart failure produced by mechanically increasing the work load on the heart without simultaneous myocardial damage. However, cardiac glycosides are dramatically effective in heart failure resulting from damaged myocardium.

#### **Tissue Affinity**

Cardiac tissue affinity for cardiac glycosides does not exist. Three times as much digitalis will accumulate in liver than heart and ten times greater concentration of the drugs' metabolites.<sup>32</sup> The possibility should not be overlooked that the metabolites, rather than the native drug, may be responsible for the demonstrable effects upon cardiac tissue.

#### **Concepts of Energy Metabolism in Muscle**

Working muscle must have a specific energy source readily available. The current concept of the specific energy source is the high energy phosphate bonds of Adenosine Triphosphate (ATP) which transmits energy to actomyosin instigating muscular contraction. The reservoir of high energy phosphate for ATP is thought to be phosphocreatine. When one molecule of ATP reacts normal muscular contraction, 11,000-12,000 calories of energy are utilized by this reaction.

Skeletal muscle contains a ten-fold greater store of phosphocreatine and available ATP than cardiac muscle. It also possesses anaerobic enzyme systems which allow the muscle to do work for short periods of time under conditions of oxygen debt. The heart, on the other hand, has small stores of ATP and phosphocreatine but is very rich in oxidative enzymes. A large and constant oxy-



gen supply for the oxidative metabolism of the heart is readily available due to its great vascularity. In the absence of anaerobic enzymes the heart suffers embarrassment under conditions of a very small degree of oxygen debt. The anatomical and metabolic architecture favors a rapid and complete conversion of energy precursors into available energy (ATP and phosphocreatine) and the sustained transformation of this potential energy into muscle contraction.

Experiments utilizing heart-lung preparations have shown that digitalis increases the force of contraction without increasing oxygen uptake.<sup>33</sup> These results infer that an increase in the efficiency of transforming potential energy into muscle contraction has occurred.

Grisolia<sup>33</sup> extended the possible explanation for these results. The ability of cells to transform potential energy into useful work or into the production of heat according to physiological demands must require a regulatory mechanism. Heat production, (ATP-ase activity), markedly increases when mitochondria are incubated briefly in the absence of substrate. If normal tissue preparations are made to do constructive chemical work, oxygen consumption will increase by increasing the loss of potential energy from ATP-ase or ATP-ase-like action with heat production. The tissue in the heart-lung preparation may act as damaged cells with a depletion of necessary substrates and co-enzymes. This would simply tend to shift cellular activity into the production of heat instead of useful work. Cardiac glycosides may not work directly on actomysin but their beneficial effects are realized by expediting effective utilization of high energy phosphate from a shift of the "regulatory mechanism." Digitalis, however, does not influence the ATP-ase activity of rat liver mitochondria.

Concentrations of digitalis were found highest in fractions of the cell representing the "nucleus," "cell membrane" and "mitochondria."<sup>34</sup> The remaining supernate, presumed to represent the myosin fraction, contain only 0.2% of digitalis. Employing the calculated molecular weight for heart myo-

sin 100,000,<sup>35</sup> that percent of digitalis fixed in interaction with myosin would entail a molecular relationship of  $1:10^{-8}$  if a single site of action is assumed.<sup>32</sup> Dilutions of this magnitude would make a direct digitalis-myosin relationship somewhat unlikely and a possible site of action at energy production or transfer level more feasible.

Energy production in normal and damaged mitochondria was studied by Grisolia<sup>36</sup> by measuring oxygen uptake and phosphate esterification. He found that digitalis and quinidine at high concentrations did not effect the energy production of normal mitochondria but they did potentiate the uncoupling effect of dinitrophenol (DNP). The potentiation of DNP uncoupling of oxidative phosphorylation may act by altering membrane permeability. Changes in ionic composition of the medium markedly affect this potentiation. The intact cell, but not mitochondria, displays marked changes of permeability to sodium and potassium under the influence of cardiac glycosides. Dinitrophenol, however, affects the permeability to these ions in both the intact cell and mitochondria.<sup>12</sup>

There has been some disagreement as to whether ATP is utilized or necessary during a single muscle twitch.<sup>37</sup> It has been demonstrated<sup>38</sup> in "in vitro" model system studies that other nucleotides, i.e., uridine triphosphate, will, on equal molar bases, induce the same degree of contraction and relaxation as ATP. These observations led Grisolia and Ito<sup>33</sup> to postulate that if a compound X is primarily connected with the contraction of muscle, it might also be connected to the utilization of ATP if, as in a hypothetical case, ATP were deaminated. Proctor<sup>39</sup> has shown that digitalis will inhibit ATP deamination in preincubated and thus damaged heart homogenates. After the interaction of ATP with actomyosin the resulting intermediate tri-phosphate has to be reaminated at the expense of the energy of ATP;<sup>40</sup> (as in the reaction inosinic acid + aspartic acid  $\rightarrow$  adenylic acid). This hypothesis seems feasible since Kalckar<sup>41</sup> has shown that the 6-amino group of adenine in the nucleotide form is very rapidly equilibrated with isotopic ammonia.

## Structural and Metabolic Relationship to Other Steroids

Mechanisms involving the metabolism of other types of steroid compounds, because of their structural similarities, may suggest possible mechanisms for the action of cardiac glycosides.

Structurally the cardiac glycosides have several things in common, present in the pharmacologically active cardiac aglycones. They are: (1) a B-OH on carbon 3, (2) stereochemical configuration at carbon 3, (3), a OH group at carbon 14 and (4) an angular methyl group at carbon 10. Common to all of these compounds is a lactone ring at carbon 17 whose presence is usually considered necessary for pharmacological activity. Digitoxigenin, whose structural formulae is shown in Figure I, is a typical example of this group of compounds.

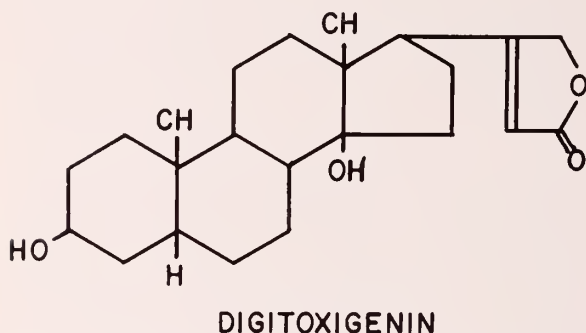


FIGURE 1

Grinnell<sup>42</sup> found that priming dogs with estrogenic steroids would significantly delay the onset of arrhythmias induced by a toxic dose of digitalis. Competitive protective mechanisms might be involved since the steroids are structurally related to digitalis by a B-OH groups on the carbon 3 position. The site of action might possibly be centered around carbon 3 position whereas the mode of action involves the carbon 17 position.

Recently, Talalay and Williams-Asham<sup>43</sup> demonstrated that estrogenic steroid hormones would activate a transhydrogenase enzyme system in crude extracts of human placenta which transfers hydrogen from

TPNH to DPN according to the following reaction (Figure 2).

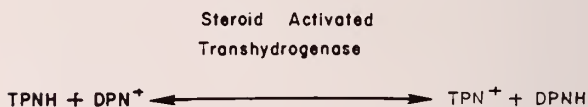


FIGURE 2

Experimental studies of action of steroid hormones upon accessory sexual tissues<sup>44</sup> have shown that extra-mitochondrial synthesis specifically requiring TPNH are extremely sensitive to these steroids. Estradiol-17B stimulated the conversion of acetate to fatty acids and cholesterol but did not influence oxidation of acetate.

Attempts to repeat the work of protecting the heart with steroid hormones from digitalis intoxication revealed that protection was afforded by these compounds only when the animals were on a high fat diet.<sup>45</sup> It is possible that the low fat diet stimulated fatty acid and cholesterol synthesis from acetate via the extra-mitochondrial TPNH specific enzymes. The steroid hormones may be utilized in these reactions and would not be available to the mitochondrial enzyme systems. If high fat diets are fed, the extra-mitochondrial fatty acid synthesis mechanisms would be suppressed. The estrogenic steroid hormones would then be available to competitively bind or inhibit mitochondrial mechanisms susceptible to digitalis stimulation.

Higher concentrations of TPNH is present in muscle than TPN and at a steady-state level DPN is usually greater than DPNH.<sup>46</sup> Therefore, the ratio

$$\frac{(\text{TPNH})}{(\text{TPN})} \quad \frac{(\text{DPN})}{(\text{DPNH})}$$

is always high and represents the equilibrium constant of the pyridine nucleotide transhydrogenase reaction.<sup>43</sup> Disturbances in the balance of TPNH and DPNH maintained by a transhydrogenase system, would alter the equilibrium between anabolic and catabolic mechanisms that govern the growth and function of the cells. The majority of the DPN or TPN linked dehydrogenases employ



only one hydrogen acceptor preferentially and function less satisfactorily with another.

### Possible Enzymatic Mechanisms of Muscle Metabolism

It has been suggested by Kaplan<sup>17</sup> that the transhydrogenase systems of the mitochondria are important in regulating the balance between various synthesis and energy-yielding reactions. His experiments suggest that oxidation of DPNH by mitochondria serves as a source of energy for synthesis for ATP and that oxidation of TPNH, by transferring the hydrogen to DPN, must first occur before TPN is available to be coupled with phosphorylation.

These recent findings suggest another possible mechanism for the mode and site of action of cardiac glycosides on cardiac muscle. It would not seem unreasonable to assume that a pyridine nucleotide transhydrogenase system is present in cardiac muscle. Attempts will be made to explain how the presence of this enzyme system in heart muscle could account for the confusing and negative experimental results obtained when this system is influenced by digitalis.

At this point it seems necessary to briefly review metabolic pathways in cardiac muscle and, in particular, specific pyridine nucleotide-linked enzymes involved in these pathways.

The principal source of energy for skeletal muscle contraction is from degradation of glucose with production of ATP. Cardiac muscle, however, is unique in this respect and metabolizes lactate preferentially to glucose as its principal source of energy. The key reaction in this metabolic pathway, as seen in Figure 3, is catalyzed by DPN-linked lactic acid dehydrogenase.

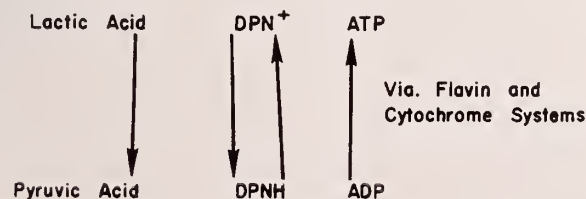


FIGURE 3

It is seen in this reaction that ATP is produced for muscular contraction by reduction of DPN without utilization of oxygen. Since the vast majority of enzymatic reactions are reversible, the critical ratio between DPN and DPNH must be maintained for the reaction to proceed in proper direction.

Other important reactions involving pyridine nucleotide linked enzymes are found within the tricarboxylic acid cycle. An enzyme linked with DPN or TPN catalysis the reaction malic acid to oxalacetic acid with the production of high energy phosphate. Ochoa<sup>18</sup> found that this enzyme apparently served two roles. One role is specifically linked to TPN. The second function attributed to the enzyme is the conversion of malic acid directly to pyruvic acid by oxidative decarboxylation in an acid medium. The dominant action of the enzyme at any given moment is dependent upon the hydrogen ion concentration of the medium. Figure 4 illustrates this dualistic role.

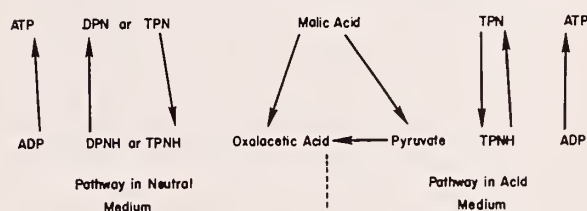


FIGURE 4

It will be noted that both pathways are productive of high energy phosphate although the oxidative decarboxylation of malic acid to pyruvate occurs only when the hydrogen ion concentration is abnormally elevated. The mechanism by which this abnormal pathway is influenced by digitalis will be discussed later.

Iso-citric dehydrogenase, another enzyme in the tricarboxylic acid cycle, catalysis the reaction isocitrate to oxalosuccinic acid with production of high energy phosphate. This enzyme, illustrated in Figure 5, is specifically linked with TPN.

It must be re-emphasized that the balance



of the ratio between oxidized TPN or DPN and the reduced forms (TPNH or DPNH) must be properly maintained if metabolic

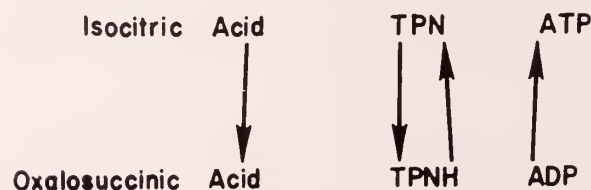


FIGURE 5

cycles are to function at proper rate and direction. Changes in this ratio might increase the rate of reaction, inhibit the reaction or entirely reverse its direction. Existing evidence of biological reactions suggest that this balance is most likely to be under enzymatic control. The pyridine nucleotide transhydrogenase system, as previously described, would be the best candidate for this important regulation.

#### Possible Influence on Enzymatic Activity

Briefly the  $TPNH + DPH^+ \rightleftharpoons TPN^+ + DPNH$  reaction is catalyzed by a pyridine nucleotide transhydrogenase enzyme and this enzymatic reaction has been shown to be greatly influenced by the presence of certain steroid hormones.<sup>43</sup> The action exhibited by cardiac glycosides, with exception of the reaction lactate to pyruvate, on the failing heart might function through stimulation of this enzymatic mechanism. However, it cannot be seen at this time how this mechanism would enhance the conversion of lactate to pyruvate. This can be attributed to inadequate knowledge about the concentrations ratios of oxidized and reduced forms of pyridine nucleotide-linked enzymes for optimal reaction. The significance of their distribution throughout the cellular architecture is also controversial.

Due to the uniqueness of cardiac metabolism, we could assume that in normal heart the rate of pyridine nucleotide transhydrogenase system reaction is optimal under conditions prescribed by normal environment. This would be one explanation why digitalis

has no beneficial effect on the normal heart, why in mitochondria it does not stimulate oxygen consumption, does not alter oxidative phosphorylation, high energy phosphate production, ATP-ase activity or change the inorganic phosphate concentrations. On the other hand, lactate accumulates in cardiac tissue after the administration of non-toxic doses of digitalis. Again the lack of information about lactate metabolic mechanisms compels us to postulate a reason for this effect. The extra-mitochondrial synthesis mechanisms are regulated by the same pyridine nucleotide transhydrogenase system. They may be affected by imbalances before the mitochondrial systems because of their accessibility, location, differences in the medium or other unknown reasons. The mechanisms by which lactate is converted to pyruvate or transported to the mitochondria might be susceptible to stimulation by digitalis if these extra-mitochondrial mechanisms are functioning at a lowered equilibrium constant for the pyridine nucleotide transhydrogenase reaction. Thus digitalis would tend to decrease or reverse the reaction of lactate to pyruvate. For this reason and also because certain structures of the heart are more susceptible to digitalis intoxication than others, digitalis intoxication would be evident before other metabolic pathways would be demonstrably altered. Digitalis intoxication of the heart would therefore be analogous to skeletal muscle fatigue caused by the accumulation of lactic acid and its metabolites at a cellular level.

#### Metabolic Changes in Myocardial Damage

There is little doubt that metabolic changes occur in myocardium with myocardial damage. These may be transitory such as in a myocardial infarct or progressive as seen in congestive heart failure. However small or extensive the damage, some beneficial effect is usually realized from the administration of cardiac glycosides.

The metabolic mechanisms involved and their interrelations may be comprehended by analyzing the alterations occurring in a localized area of myocardium as a consequence of sudden or rapidly progressing oxygen debt. When oxygen is limited to a tis-

sue, the components of oxidative-reducing enzymes tend to accumulate in their reduced forms. The first effect seen would be due to a shift in the DPNH/DPN ratio of the lactic acid to pyruvate reaction. Increased DPNH would cause a shift from pyruvate to lactic acid, thus reducing or depleting the substrate for energy production. Lactate would be expected to accumulate. This area of the heart suffering the embarrassment quickly becomes hyperexcitable and may trigger-off ectopic beats, arrhythmias or fibrillation depending upon the extent of damage and the rapidity of onset. Sudden massive myocardial infarcts usually result in fibrillation and death, whereas, a slower onset or less extensive damage may not induce such dramatic irregularities. The immediate area of embarrassment in time will become fibrosed and inactive. The area immediately around the fibrosis remains hyperirritable due to oxygen debt until new vascularity develops.

A secondary reaction, augmenting this diverse metabolism, would be initiated by a change in pH of the tissue resulting from the accumulation of  $\text{CO}_2$  and other metabolites. When the pH decreases it activates the TPN-decarboxylase activity of the malic enzyme and shifts the normal reaction malic acid to oxalacetic acid to the normal pathway of malic acid to pyruvic acid. Increase in the pyruvic acid augments the reversed reaction to lactic acid adding further metabolic insult. Utilizing malic acid in this pathway would deplete substrates of the tricarboxylic acid cycle since pyruvate is no longer available.

The accumulation of the cofactors, i.e., DPN, TPN, FAD, etc., in their reduced forms would inhibit or reverse virtually all the reactions within the tricarboxylic acid cycle. The accumulation of DPNH and TPNH would also inhibit the pyridine nucleotide transhydrogenase system.

#### **Postulated Effects on Metabolic Changes**

If normal metabolic reactions are completely inhibited or reversed, as we have just described, then digitalis could not be of much benefit to this system. Digitalis in myocardial infarct undoubtedly exerts its effect

upon the metabolically depressed hyperexcitable tissue around the infarcted area and not upon the irreversibly damaged area.

The myocardium of the failing heart of congestive heart failure would represent metabolically depressed, hyperexcitable tissue. The metabolic depression is diffuse throughout the myocardium and progressively slower in onset. However, metabolic alterations encountered are probably the same as those described for myocardial infarct.

Correction of this metabolic depression by digitalization might occur in the following manner. Since the extra-mitochondrial synthesis of fatty acids, cholesterol, etc., would be of secondary importance to the mitochondrial oxidative phosphorylation mechanism, it would seem reasonable that digitalis acts first upon the system necessary for immediate survival of the cell. Therefore, the influence of digitalis would probably be seen as an apparent increase in TPN-isocitric dehydrogenase activity. This effective increase in activity would be brought about through stimulating the pyridine nucleotide transhydrogenase system. The system would transfer hydrogen from TPNH to DPN, thereby increasing the TPN available for enzyme activation. With re-establishment of the proper TPNH/TPN and DPN/DPNH ratios the rate and direction of the metabolic processes would return toward normal. The return of function to the heart in its role as a pump would, of course, depend upon the amount of irreversible damage present at the time of digitalization.

Possible mechanisms for the action of cardiac glycosides have been reviewed. The inadequacy of these postulates to explain the results obtained under experimental conditions leaves much to be desired. The possible mechanism, for the action of cardiac glycosides on cardiac muscle, postulated in this paper is an endeavor toward these ends. However, the obvious absence of experimental data at this time gives impetus to these words of Thomas Huxley, "The tragedy of science is the shattering bereavement of seeing a beautiful hypothesis slain by an ugly fact."



## BIBLIOGRAPHY

1. Goodman, L. S. and A. Gilman, The Pharmacological Basis of Therapeutics. Second edition, The MacMillan Company, New York, 1955, page 672.
2. Hyman, A. L., Jacques, W. E. and E. J. Hyman, Observations of the Direct Effect of Digoxin on Renal Excretion of Sodium and Water. *Am. Heart J.* 52: 592, 1956.
3. Faust, R. M. and P. R. Saunders, Comparative Effects of Quabain upon Contractile Force of Guinea Pig Diaphragm and Heart. *Proc. Soc. Exp. Biol. and Med.* 94: 351, 1957.
4. Cranefield, P. F. and B. F. Hoffman, Electrophysiology of Single Cardiac Cells. *Physiological Reviews* 38: 41, 1958.
5. Hoffman, B. F., *Ann. Brazil Acad. Sci.* (In press) Reference: Cranefield, P. F. and B. F. Hoffman, Electrophysiology of Single Cardiac Cells. *Physiological Reviews* 38: 41, 1958.
6. Levy, J. U. and T. C. West, *J. Pharmacol. and Exper. Therap.* (In press) Reference: Cranefield, P. F. and B. F. Hoffman, Electrophysiology of Single Cardiac Cells. *Physiological Reviews* 38: 41, 1958.
7. Stutz, H., Feigelson, E., Emerson, J. and R. J. Bing, The Effects of Digitalis (Cedilanid) on the Mechanical and Electrical Activity of Extracted and Non-extracted Heart Muscle Preparations. *Circulation Research* 2: 555, 1954.
8. Woodbury, L. A. and H. H. Hecht, Effects of Cardiac Glycosides Upon the Electrical Activity of Single Ventricular Fibers of the Frog Heart and Their Relation to the Digitalis Effect of the Electrocardiogram. *Circulation* 6: 172, 1952.
9. Coraboeuf, E., DeLoze, C. and J. Boistel, Action de la Digitale sur les Potentiels de Membrane et d'Action du Tissu Conducteur Ju Couer de Chien 'etude'e a l'aide de Micro-electrodes Intracullulaires. *Compt. Rend. Soc. Biol.* 147: 1169, 1953.
10. Boyer, P. K. and C. A. Poindexter, The Influence of Digitalis on the Electrolyte and Water Content of Heart Muscle. *Am. Heart J.* 20: 586, 1940.
11. Rebar, J., Jr., Rebar, B. T. and A. Omachi, Influence of Digitoxin on Labile and Inorganic Phosphates, Lactate, Glycogen, Potassium and Sodium in Dog Ventricle. *Circulation Research* 5: 504, 1957.
12. Holland, W. C. and C. E. Dunn, Role of the Cell Membrane and Mitochondria in the Phenomenon of Ion Transport in Cardiac Muscle. *Am. J. Physiol.* 179: 486, 1954.
13. Calhoun, R. A. and T. R. Harrison, Studies in Congestive Heart Failure. IX The Effect of Digitalis on the Potassium Content of the Cardiac Muscle of Dogs. *J. Clin. Invest.* 10: 139, 1931.
14. Cohn, H. L. Jr., Effects of Digitalis and Hypoxia on Potassium Transfer and Distribution in the Dog Heart. *Am. J. Physiol.* 184: 548, 1956.
15. Garb, S. and V. Venturi, The Differential Actions of Potassium on the Therapeutic and Toxic Effects of Quabain. *J. Pharmacol. and Exper. Therap.* 112: 94, 1954.
16. Plaut, K. A., Gertler, M. M. and G. W. E. Plaut, Efficiency of Oxidative Phosphorylation of Heart Muscle Mitochondria from Digitalized Guinea Pigs. *Circulation Research* 5: 226, 1957.
17. Wollenberger, A., Metabolic Action of Cardiac Glycosides. II. Effect of Quabain and Digoxin on the Energy-Rich Phosphate Content of the Heart. *J. Pharmacol. and Exper. Therap.* 103: 123, 1951.
18. Lardy, H. A., Energetic Coupling and the Regulation of Metabolic Rates. *Proc. Third International Congress of Biochem.*, Brussels, 1955 (c. Lie'becq, ed.) New York, Academic Press, p. 287, 1956.
19. Wollenberger, A., Relation Between Work and Labile Phosphate Content in the Isolated Dog Heart. *Circulation Research* 5: 175, 1957.
20. Nachmansohn, D., Über Den Zerfall. Der Kreatinphosphorsaure im Zusammenhang mit der tätigkeit des Muskels. II. *Biochem. Ztschr.* 208: 237, 1929.
21. Jaques, W. E. and A. L. Hyman, Experimental Supravalvular Mitral Stenosis in the Dog. *A.M.A. Arch. Path.* 64: 67, 1957.
22. . . . The Effects of Digoxin on Cardiac Output and Hemodynamics in Experimental Supravalvular Mitral Stenosis. *J. Okla. State Med. Assoc.* 51: 111, 1958.
23. Ferrer, M. I., Harvey, R. M., Cathcart, R. T., Courmand, A. and W. R. Dickinson, Jr., Hemodynamic Studies in Rheumatic Heart Disease. *C. Rc.* 6: 688, 1952.
24. Edman, K. A. Paul, Action of Cardiac Glycosides on the ATP-Induced Contraction of Glycinated Muscle Fibers. *Acta. Phsiologica Scand.* 30: 69, 1953.
25. Greeff, K. and E. Westermann, Untersuchungen uber die Muskell a hmende Wirkung des Strophanthins. *Arch. Exp. Path. u Pharmacol.* 226: 103, 1955.
26. Hoffmann, G. and H. Wienke, Sur Frage der verschiedenen Emprindlichkeit des Ratten und Meerschweinchenherzens gegen Digitalis und andere Kontrakturgifte (Ba. Ca). *ibid.* 217: 225, 1953.
27. . . . and L. Lendle, Kritisches Zur Digitalisauswertung Am. Meerschweinchen. *ibid.* 212, 376, 1951.
28. Miya, T. S. and H. G. O. Holck, Effect of the Rate of Injection of Digitalis upon its Lethal Dose in Guinea Pigs. *J. Am. Pharm. Assoc. (Scient. ed.)* 38: 64, 1949.
29. Jacobsen, E. and V. Larsen, Experiences with the Bioassay of Digitalis on Guinea Pigs. *Acta. Pharmacol. and Toxicol.* 7: 35, 1951.
30. Goldberg, L., Cardiac Irregularity and Respiratory Arrest in Assay of Cardiac Glucosides by the Guinea-Pig Method. *Arch. Internat. Pharmacodyn.* 78: 1, 1949.
31. LaDue, J. S., Generalized Muscular Weakness as a Toxic Reaction to Digitalis. *Proc. Soc. Exp. Biol. and Med.* 48: 5, 1941.
32. Okita, G. T., Talso, P. J., Curry, J. H., Jr., Smith, F. D., Jr. and E. M. K. Geiking, *J. Pharmacol. and Exper. Therap.* 115: 371, 1955.
33. Grisolia, S. and N. Ito, Digitalis (Dimond, G. ed.) First edition, Charles C. Thomas Company, Springfield, Illinois, 1957, pages 86-94.
34. Harvey, S. C. and G. R. Pieper, Intracellular Distribution of Digitoxin. *Federation Proc.* 12: 329, 1953.
35. Ellenbogen, E. and R. E. Olson, The Contractile Properties of Dog Heart. *ibid.* 14: 207, 1955.
36. Grisolia, S., The Potentiating Effect of Digitoxin and Quinidine on Dinitrophenol Uncoupling of Oxidative Phosphorylation. *Biochem. and Bioph.*, ACTA. 18: 437, 1955.
37. Mommaerts, W. F., Is Adenosine Triphosphate Broken Down During a Single Muscle Twitch? *Nature* 174: 1083, 1954.
38. Ranney, R. E., Biochemical Characteristics of Glycerol-extracted Myocardial Fibers. *Am. J. Physiol.* 183: 197, 1955.
39. Proctor, C. D., Rebar, J., Jr. and B. Tigerman, A Hypothesis for a Mechanism of Cardiac Glycoside Action. *Ann. New York Acad. Sci.* 62: 379, 1955.
40. Abrams, R. and M. Bentley, Transformation of Inosinic Acid to Adenylic and Guanylic Acids in a Soluble Enzyme System. *J. Am. Chem. Soc.* 77: 4179, 1955.
41. Kalckar, W. M. and D. Rittenberg, Rejuvenation of Muscle Adenylic Acid Nitrogen in Vivo Studied with Isotopic Nitrogen. *J. Biol. Chem.* 170: 455, 1947.
42. Grinnell, E. H. and P. W. Smith, Effect of Estrogens on Myocardial Sensitivity to Toxic Effects of Digoxin. *Proc. Soc. Exper. Biol. and Med.* 94: 524, 1957.
43. Talalay, P. and H. G. Williams-Ashman, Activation of Hydrogen Tranfer Between Pyridine Nucleotides by Steroid Hormones. *Proc. Nat. Acad. of Sci.* 44: 15, 1958.
44. Mueller, G. C., A Discussion of the Mechanism of Action of Steroid Hormones. *Cancer Research* 17: 490, 1957.
45. Smith, P. W., Personal Communication.
46. Glock, G. and P. McLean, Levels of Oxidized and Reduced Diphosphopyridine Nucleotide and Triphosphopyridine Nucleotide in Animal Tissues. *Biochem. J.* 61: 388, 1955.
47. Kaplan, N. O., Schwartz, M. N., Frech, M. E. and M. M. Ciotti, Phosphorylative and Non-phosphorylative Pathways of Electron Transfer in Rat Liver Mitochondria. *Proc. Nat. Acad. of Sci.* 42: 481, 1956.
48. Ochoa, S., Enzymatic Mechanisms in the Citric Acid Cycle. *Advances in Enzymol.* 15: 183, 1954.

800 N.E. 13th, Oklahoma City, Oklahoma



# MEDICAL-SURGICAL CONFERENCE

RENE MENGUY, M.D., Ph.D., and MRS. ESTHER COMPTON

Proceedings of a weekly conference sponsored by the Medical and Surgical Services, VA Hospital and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine.

## PANCREATIC PSEUDOCYST

*Doctor McCune:* The patient is a 51-year-old white male who was first seen in this hospital in February, 1958. At that time he was admitted to the Medical Service with a several day history of acute onset of epigastric pain and vomiting. At times his pain seemed to radiate over the entire abdomen. The pain was cramping in nature. On the morning of admission he had consumed a pint of whiskey before breakfast. He also gave a history of excessive alcohol intake over the past 10 to 15 years. Prior to entering the hospital he had had two or three coffee ground emeses. On the Medical Service the thought was that he had acute gastritis, secondary to alcohol, and also acute pancreatitis. His serum amylase which was 320 units on admission to the hospital decreased to about 120 at the time of discharge a week later. While in the hospital he was treated with gastric suction and fluid replacement. He recovered from this episode uneventfully and from the latter part of February until he presented himself to the hospital on the 31st day of July, 1958 he had only a few episodes of epigastric pain which were not severe enough to

cause him to seek hospitalization. On July 31st he came to the hospital complaining of rather severe epigastric pain radiating over the entire abdomen which had been present for about 10 days. During those 10 days he had been vomiting intermittently and during the three days prior to admission he had not been able to eat anything at all. The only positive physical findings were some redness of the mucous membranes of the mouth and tongue, a generalized loss of skin turgor and abdominal tenderness primarily in the right upper quadrant and a liver palpable 4cm. below the right costal margin. The laboratory studies done at that time showed the following results: His serum amylase was 4,000 units and the alkaline phosphatase was 15 Bodansky units. The serum bilirubin was normal. He was treated on the Medical Service with suction and intravenous fluids. On August 6 a mass in the left upper quadrant and epigastrium was found. The mass was thought to be fluctuant and cystic. From the 6th to the 29th of August his course was one of intermittent pyloric obstruction. He was treated with intravenous fluids in an effort to maintain a proper state of nutrition. It was impossible to crossmatch this patient with the stored blood available in the hospital. On August 29 under fluoroscopic control a needle was placed into the cyst and 3,000 cc of yellow golden fluid were aspirated. Radio opaque

media was introduced into the cyst and x-rays taken which confirmed the diagnosis of a pancreatic pseudocyst. Following aspiration of the cyst he was able to eat which he had not been able to do for several days. However, following aspiration the cyst promptly began to fill again. He became jaundiced and a serum bilirubin done on October 1 was 4 mgm%. On Friday, October 3 the abdomen was explored through an upper mid-line incision. The stomach was displaced anteriorly by a large retro-gastric mass. The cystic mass was exposed by division of the gastrocolic ligament and a trochar was induced into the cyst, the contents of which were evacuated. This facilitated exposure considerably. The gall bladder was found to be markedly distended with evidence of minimal acute cholecystitis. Exploration of the common bile duct revealed considerable dilatation. A cholangiogram was then done. This showed complete obstruction and distortion of the distal third of the common bile duct. The gall bladder was then removed and the common bile duct opened. Exploration of the duct confirmed the diagnosis of complete obstruction. It was impossible to pass even the smallest dilator into the duodenum. Ac-



FIGURE 1



FIGURE 2

cordingly a biliary shunt procedure was performed by means of a side to side choledochoduodenostomy. Following this an internal decompression of the cyst was performed by anastomosing a loop of jejunum to a dependent portion of the cyst. The anastomosis was performed in a retrocolic fashion. Proximal to the cystojejunostomy an enteroanastomosis was carried out in order to prevent penetration of small bowel contents into the cyst. Postoperatively he did extremely well. Whereas his plasma amylase had remained high until just before operation the level has now come down to about 400 units. His jaundice decreased very rapidly following operation. On the day of operation there was a large amount of bile in the aspirated gastric contents.

*Doctor Ridings:* All of the upper gastrointestinal tract x-rays show a very large mass which is displacing the stomach forward. A barium enema also shows the mass extrensic to the colon and displacing the transverse colon downward; therefore we can say that there is a mass posterior to the intestinal tract in the mid portion of the abdomen (Fig. 1). The diagnostic puncture of the cyst shows opaque media in the cyst





FIGURE 3

(Fig. 2). A cholangiogram done at the time of operation shows marked dilatation of the common bile duct with distortion and complete obstruction of the terminal portion of the duct. There is no media in the duodenum (Fig. 3). Doctor Hodges would you like to discuss this diagnostic aspiration of the cyst which you performed?

*Doctor Hodges:* We elected to aspirate the mass because we considered it to be a pancreatic cyst and, since we were unable to crossmatch this patient with stored blood and he was unable to eat, we were going backward all the time with him instead of getting him in any shape for operation. In view of the separation between the bowel and the stomach we thought it would be easy to introduce a needle directly into the cyst with the patient lying on his back. The cyst fluid had an amylase level of 40,000 units so that there was little doubt but that we were dealing with a pancreatic pseudocyst. The patient was able to eat immediately afterward although the cyst promptly refilled. We had placed a polyethylene tube through the needle and into the cyst in an attempt to keep it draining but the tube soon became plugged and no longer accomplished its function.

*Doctor Menguy:* I think this patient may form a good background for the discussion of pseudocysts of the pancreas in general. There are such things as retention cysts, neoplastic cysts and parasitic cysts. I think we must keep in mind that the majority of cysts of the pancreas encountered in clinical

practice are the so-called pancreatic pseudocysts. One can define a pancreatic pseudocyst as a collection of fluid-like material containing necrotic debris and old blood that forms in the pancreas or adjacent to it. A pseudocyst has no true wall. It's walls are really formed by fibrous inflammatory tissue or by the walls of the surrounding organs such as the posterior wall of the stomach, colon, the transverse mesocolon, all of which are covered by necrotic granulation tissue. The pseudocyst develops in the lesser peritoneal cavity. Due to the fact that it has no true epithelial lining the lesion is called pseudocyst. In general pancreatic pseudocysts are due to two causes—acute pancreatitis or trauma. Trauma to the abdomen will cause a cyst to develop by laceration of the pancreas along with the pancreatic ducts. This allows egress of pancreatic secretions into the surrounding tissue spaces. On the other hand acute pancreatitis by a chemical necrosis of pancreatic tissue produces a break in the continuity of the pancreatic ductal system with egress of pancreatic juice into the surrounding tissues. The proportion of the two causes is not really known. Centers that handle a lot of traumatic material will have a lot of pancreatic cysts due to trauma while other centers that do not see much traumatic surgery will have a major proportion of pseudocysts following acute pancreatitis. The signs and symptoms of a pseudocyst are usually quite clearcut and the diagnosis is not a difficult one. The antecedent history of acute pancreatitis or blunt trauma to the abdomen is important. Although it may occur, the silent formation of a pseudocyst is rare. Once the cyst has formed, pain is the most constant symptom and is usually located in the epigastrium. Characteristically the pain is more severe when the patient is lying down and is relieved when he sits up. In virtually all cases an abdominal mass is palpable. It is very characteristic of a pseudocyst that the palpable mass varies in size and consistency from day to day. About 10% of patients with a pancreatic pseudocyst have obstructive jaundice. Many of the patients have varying degrees of intestinal obstruction. This is due to mechanical compression of the bowel, duodenum, and the jejunum, by the cyst. Re-



sults of laboratory tests are variable according to the time they are done in relation to the onset of the disease. Usually a pseudocyst, when it appears after acute pancreatitis, will become evident in about one to two weeks after the attack of acute pancreatitis. Usually by that time the serum amylase has returned to normal. If it remains elevated as it did in this patient a persistent obstruction of the pancreatic duct is very probable. Since pancreatic pseudocyst is caused by acute pancreatitis it might be germane to our discussion to say a few words about the etiology of acute pancreatitis. In general there are three factors that play a role in the causation of experimental acute pancreatitis. These are the ductal factor, the vascular factor and the metabolic factor. The ductal factor includes all the methods of producing experimental pancreatitis, by obstructing the major pancreatic duct, by injecting bile into the major pancreatic duct or by permitting the admixture of pancreatic juice and bile to flow into the pancreatic duct. For many years it was thought that obstruction alone could not produce experimental acute pancreatitis. In theory this was attributed to the inactive form that trypsin is supposed to be in while in the pancreatic ducts. We know now that this is not true and that there is a small amount of activated trypsin in pancreatic juice before it reaches the duodenum. Experimentally acute pancreatitis can be produced by simple obstruction of the pancreatic ducts in face of an actively secreting gland. Transposing experience from the experimental laboratory to clinical practice, we know that in about one-third of patients with acute pancreatitis that this ductal factor plays an important role. In approximately 30% of patients with acute pancreatitis there is disease of the biliary tree.

The role of pancreatic vascular disturbances in the causation of acute pancreatitis produced by ligation of the pancreatic duct is considerably aggravated by simultaneous production of vascular disturbances either arterial or venous. It is possible that such changes may take place in spontaneous human pancreatitis.

The metabolic factor in chronic pancrea-

titis is related to the high incidence of alcoholism in patients with acute and chronic pancreatitis or both. Approximately 30 to 60 per cent of patients with acute pancreatic disease have a history of heavy alcoholic intake. Sometimes this is spread out over a matter of years, and other times one can only elicit a history of an acute alcoholic bout preceding the onset of acute pancreatitis. The cause of this relationship is obscure. The answer may lie in specific protein deficiencies that are common to the alcoholic patient. We do know that in severely malnourished infants pancreatic changes not unlike those that may occur in chronic pancreatitis are present. Since pancreatic pseudocyst is but one of the many complications of acute pancreatitis I think it may be apropos to discuss some of the other complications of acute pancreatic disease. Doctor Duval has consented to discuss this aspect of the problem.

*Doctor Duval:* From the clinical standpoint I have made a list of the complications that I think should be mentioned in terms of the acute attack of pancreatitis. The easiest way for me to think of the complications of pancreatitis is to place them in two groups. The immediate complications which are often of a chemical nature and the delayed and late complications which are often mechanical.

Beginning with the immediate complications of the attack one has to think of hypovolemia and shock. There may be a decrease in the circulating blood volume of from 15 to 25 per cent. Tetany, although not frequently seen the first day, can certainly occur within the first 48 to 72 hours. When it does occur the explanation is the following. The outpouring of pancreatic lipase into tissue spaces produces a breakdown of fatty tissue with a resulting combination of fatty acid and ionized calcium to form soaps. When this occurs the concentration of ionized calcium falls very low and causes clinical tetany. The third immediate complication that one sees with acute pancreatitis is hypoinsulinism. This should be predictable, recognizable and treatable and generally speaking is a completely reversible process provided the patient survives. Paralytic

ileus is part and parcel of the problem of acute pancreatitis, and is treated automatically when a gastric suction tube is placed in the stomach. The latter is a fundamental part of the treatment of acute pancreatitis since by removing acid gastric secretions one also removes one of the stimulatory factors to the pancreas. Another complication I wish to mention is acute noncalculous cholecystitis. This complication must be watched for since it may be a secondary phenomenon incident to an episode of acute pancreatitis and may direct the subsequent course of management. Cholangitis announced by the onset of chills, fever and jaundice may be the cause of the downhill course of a patient who is on a so-called conservative method of management. Bleeding as a complication of acute pancreatitis often goes unrecognized. At least one out of three patients with acute pancreatitis have blood in their stools. This finding is related to the gastritis associated with the alcoholic episode or may be due to the action of pancreatic enzymes on the bowel wall. Pleural effusion is an occasional complication of acute pancreatitis. More will be said about this in a moment. The last complication of the acute episode is pseudocyst. A pseudocyst is not a direct and immediate complication in the sense that it occurs within the first 72 hours although this occasionally does happen. It may be seen in both periods, immediate and delayed.

Now among the delayed complications of acute pancreatitis we have hemorrhage, abscess formation, phlebitis, subphrenic abscess and fistula. The appearance of these complications usually changes the course of treatment. As a rule, pancreatic fistula occurs when the patient has been operated on for the acute attack. Bacterial complications are of tremendous importance in the late stages of the disease. They are usually detectable long after the 72-hour period is gone and they occur in those patients that have survived. The natural history of acute pancreatitis either calls for immediate death or for a survival of longer than 72 hours.

The patients do not usually die on the second or third day. One of the questions that is brought up most frequently regarding a patient with acute pancreatitis is the

following: What are the chances of the patients having another attack of acute pancreatitis? If one were to survey the literature at any time the incidence would be reported as ranging from 5 to 50% of recurring attacks. This, of course, depends upon the etiology of the pancreatitis. There is considerable clinical evidence to support the statement that pancreatitis is far more likely to recur in the alcoholic patient. Another one of the late complications of acute pancreatitis is disease of the biliary tree. One of the late complications of acute pancreatitis is the formation of gall stones. We tend to think that pancreatic disease is frequently secondary to disease of the biliary tract and by and large it is. However, we know now that biliary tract disease may become a complicating factor of pancreatic disease. It is centered around the extent of the pancreatic fibrosis incident in the process of repair with involvement of the terminal portion of the common bile duct. Common duct stricture may be overlooked and is one of the hardest things to diagnose unless you are aware of its possible existence and willing to look for it. We are dealing most likely with this type of situation in this patient. The common bile duct stricture complicating acute and/or chronic pancreatitis is in the identical anatomical position from one patient to another. It is usually located in the distal third of the duct. This brings up the question of sphincterotomy. Sphincterotomy for pancreatic or common bile duct stricture is not a logical procedure since the areas of obstruction are usually proximal to the sphincter of Oddi.

Finally, there are two other complications of recurring acute or chronic pancreatitis that I must mention. Carcinoma has been mentioned as a complication of chronic pancreatitis. We do not know whether there is a true relationship between the appearance of carcinoma or whether such a relationship is mainly fortuitous. There is some evidence of a relationship between pancreatitis and pulmonary tuberculosis. The incidence of pulmonary tuberculosis in patients with pancreatic disease is fairly high. An incidence of 19% has been reported.

*Doctor Menguy: Pulmonary complications*



play an important part in the picture of acute pancreatitis. Doctors Hammarsten and Honska have reviewed their findings at the Medical Center in this regard. Doctor Honska will present their findings.

*Doctor Honska:* Our interest in the problem of pleural effusion in pancreatitis was stimulated by the discovery of a case of pleural effusion complicating an episode of acute pancreatitis in 1956. This patient was studied by Doctors Hammarsten and Limes. Actually the condition was diagnosed by the amylase determinations on the pleural fluid. We have been fortunate enough to study four patients at this hospital with pancreatitis complicated by accumulation of pleural fluid. The first patient had a pleural fluid amylase level of 53,000 units as compared with a serum amylase of 1,070. The second patient had a pleural amylase level of 1,136 with a serum amylase level of 243. In the third patient the pleural amylase was 800 and the serum amylase was 725. The fourth patient had a pleural amylase of 3,200 with a serum amylase of 400. The interesting point about our first case was the fact that his pleural fluid amylase was always higher than his serum amylase and came down much slower than the level in the serum. The same thing was true in our fourth patient. Lipp and Aaron<sup>1</sup> have reported a 71% incidence of pulmonary complications in patients with acute pancreatitis. We have reviewed 63 cases of acute pancreatitis both in the Veterans Administration Hospital and in the University Hospital. The complications occurred in the acute phase. In 30% of these patients there was x-ray evidence of pulmonary pathology. Fourteen patients had basilar atelectasis in the acute phase. Five patients had pleural effusions. In four patients that died following acute pancreatitis and where post-mortem was obtained, pleural effusion was found. Two of these had negative chest x-rays and in the other two patients the x-ray showed atelectasis. Therefore we had a series of nine cases of acute pancreatitis with pleural effusion, giving us an overall total of 15% of our cases of acute pancreatitis having pleural effusion. Several theories have been postulated as to the cause of pleural effusion fol-

lowing acute pancreatitis. We believe that this is due to the rich, lymphatic connection between the abdomen and the thorax running through the diaphragm. It is possible that these connections serve as an auxiliary channel and during times of obstruction to the normal lymphatic drainage these probably open up and therefore we have retrograde drainage of pancreatic secretions into the pleural cavity. One other explanation has been given in regard to direct pancreatic contamination with fat necrosis and here again the lymphatics would come into play. We have no real explanation for the phenomenon of pleural effusion except for these speculations.

*Doctor Menguy:* I think one other explanation we could give for the occurrence of pleural effusion is the following. I am sure you have all seen a patient with the so-called Gray-Turner sign in acute pancreatitis. This consists in an ecchymotic discoloration of the subcutaneous tissues over the flanks and the anterior abdominal wall. This is due to necrosis and hemorrhage of the parietal tissues under the influence of pancreatic enzymes which have infiltrated the retroperitoneal tissue spaces. I am certain the same thing could occur with the chest complications. The pancreas of course is retroperitoneal. When there is egress of pancreatic juice it tends to follow retroperitoneal tissue planes. In this manner pancreatic secretions could penetrate into the mediastinum and either pleural space by way of the esophageal hiatus.

To get back to the problem of pancreatic pseudocyst, the question now comes up of what to do about these lesions. I think one could safely say without any danger of argument with our Medical confereres at this combined meeting that everyone is in agreement that all pseudocysts of the pancreas should be treated surgically. There are many reasons for this attitude. In many cases persistence of a pseudocyst is incompatible with life. This was the case in this man. The cyst had produced complete obstruction and he could not eat. In about 10% of the patients there is jaundice, which by itself, is an absolute surgical indication. Furthermore, a patient with a pancreatic pseudo-



cyst is at the mercy of very sudden and very serious complications. Due to its very nature, the pseudocyst contains potent proteolytic enzymes which represent a constant menace to surrounding vital structures. This process of tissue digestion and necrosis can allow the cyst to burrow its way into the duodenum, the stomach, the colon. This process is often accompanied by severe hemorrhage. The present treatment of acute pancreatitis has resulted in the appearance of an interesting phenomena. With electrolyte replacement, treatment of shock and infection we are allowing patients with the more severe forms of pancreatitis to survive the initial phase and we are seeing these patients dying a delayed death from the secondary complications of the disease, often due to the pseudocyst. The main complication is delayed hemorrhage due to the action of the pancreatic enzymes.

The pseudocyst in reality is an expanding lesion for two reasons. On one hand the constant secretion of the pancreas empties directly into the cyst so that if you emptied the latter it would recur very rapidly. On the other hand the breakdown of tissue proteins by the proteolytic enzymes of the pancreas results in a formation of smaller protein molecules which give the intracystic fluid a higher osmolarity. Fluid is therefore drawn into the cyst by osmosis. Therefore for two reasons we have a self-expanding lesion that will not be cured by simple evacuation and closure. If drainage is to be used, drainage has to be continuous. Simple excision of the cyst has been and continues to be performed. The usual indication for a cyst excision is a small cyst limited mainly to the tail of the pancreas with rather definite cleavage planes around it. The cases where removal of the cyst is possible are the very cases that would be curable by simple external catheter drainage since the small content of the cyst indicates that the amount of pancreatic secretions feeding the cyst is small. Therefore, excision of the pseudocyst finds only few indications.

Historically the first operation to be performed for a pseudocyst was external drainage by the method of marsupialization. This

consists merely in opening the cyst, evacuating it and then suturing the opening of the cyst to the parietal peritoneum. The cyst then becomes a diverticulum of the abdominal wall and drains continually to the outside. Certainly this is the safest procedure that one could perform and is attended by the least mortality, at least at the time of operation. A patient with a marsupialized cyst is a patient who is losing large amounts of water, electrolytes and proteins and therefore is difficult to maintain in a normal, metabolic balance. Another method of draining a cyst externally is achieved by simply inserting a large catheter into the cyst and connecting the catheter to a source of constant suction. This method is preferable because, although you do have a loss of pancreatic juice, the loss is a measurable one, the secretions can be collected and eventually fed back to the patient through a gastric tube or simply mixing secretions with grape juice and having the patient drink them.

There are several ways in which a pancreatic pseudocyst can be drained internally. The most popular and oldest method of internal drainage is the so-called cystogastrotomy. This is an extremely easy procedure to perform. The posterior wall of the stomach actually forms the cyst wall and all that one has to do is to incise the posterior wall of the stomach, thereby entering the cyst. The opening between the cyst and the stomach can be a simple linear incision or one can excise a small ellipse of gastric and cyst wall and run a continuous suture around the opening. This method has theoretical disadvantages. It is not a dependent drainage since the patient would have to lie on his abdomen all the time. Since the drainage is not dependent the cyst becomes a diverticulum of the stomach and gastric contents can penetrate into the cyst. However, this occurs in only 50% of cases. Another theoretical disadvantage is that gastric secretion can be expected to be increased after this procedure due to direct emptying of alkaline pancreatic juice into the antrum of the stomach. Whatever theoretical disadvantages this procedure has one must admit that it is attended by a very low mortality and that the results have been good. The method of

internal drainage that is becoming more and more popular is the so-called Roux en Y drainage. This consists in dividing a proximal loop of jejunum and anastomosing the distal end of the bowel to the cyst and the proximal end of jejunum to the bowel distally. If the vertical limb of the Roux en Y anastomosis is long enough jejunal contents cannot enter the cyst. Another method of achieving the same result is anastomosis of a jejunal loop to the cyst and a defunctionalizing entero-anastomosis proximally. This was the procedure carried out in our patient. We thought it would be preferable in this instance since it is a little more rapid and the patient had already had one major procedure on the biliary tree. There are a few other operations that can be carried out. If the cyst happens to be close to the duodenum one may consider draining the cyst directly to this organ. In other cases the cyst has been moving toward the right gutter and anastomosis between the cyst and the common bile duct was carried out. Doubilet and Mulholland<sup>2</sup> have advocated a new procedure which consists of performing a sphincterotomy and passing a small plastic tube into the cyst via the pancreatic duct and then bringing the plastic tube out along with a T-tube from the common bile duct. They claim good results. Other surgeons think that this is not a good operation because the obstruction of the duct in pancreatitis is not at the sphincter but proximal to it. This holds true for both the common bile duct and the pancreatic duct.

I would like to discuss now the reasons for the biliary intestinal anastomosis in this patient. The anatomy of the duodenal area is such that the distal third of the common bile duct just before it penetrates the duodenum runs through the glandular tissue of the head of the pancreas. Any inflammatory process in the pancreas such as acute or chronic pancreatitis therefore can involve the entire intra-pancreatic portion of the common bile duct producing stricture and obstruction. Under such conditions a sphincterotomy is not a logical procedure since the obstruction is not localized at the sphincter.

Within the past nine months we have had three patients with chronic pancreatitis and recurrence of severe jaundice within a month to two years after sphincterotomy; therefore it is my opinion that in jaundice complicating acute or chronic pancreatitis a biliary short circuiting procedure should be performed. This can be done by anastomosing the common bile duct either to the duodenum or to a Roux en Y loop of jejunum.

*Doctor Campbell:* Doctor Duval<sup>3</sup> and also Zollinger<sup>4</sup> and others have recommended pancreatojejunostomy in certain patients with chronic pancreatitis. Just this past month this procedure has been superceded in at least one hospital as Doctor Puestow<sup>5</sup> has modified the operation of pancreatojejunostomy in the following manner. He amputates the tail of the pancreas and places a probe in the pancreatic duct all of the way to the duodenum. He then unroofs the entire gland over the probe exposing the pancreatic ductal system. Then an open Roux en Y loop is pulled over the pancreas in the manner of a sleeve right up the mesenteric vessels and then sewed over the pancreas. I am just bringing this up to hear what Doctor Duval has to say about this modification of the retrograde drainage procedure.

*Doctor Duval:* Doctor Puestow told me himself that he had extended the principle that we tried to establish. It converts a relatively minor operation to a considerably more major one. I would agree that there is a definite place for it but with no immodesty whatsoever, I do not think that it superceded the principles of decompression behind a theoretical obstruction. It is a second operation to do should the first one fail.

#### REFERENCES

1. W. E. Lipp and A. H. Aaron: Acute Pancreatitis: Further observations of Value in its Recognition; New York Journal of Medicine, 50: 2043, 1950.
2. Doubilet, H. and Mulholland, J. H.: Pancreatic Cysts; Principles of Treatment. Surgery, Gyn. & Obst. 96: 683, 1953.
3. Duval, M. K. Jr.: Caudal Pancreato-jejunostomy for Chronic Relapsing Pancreatitis. Ann. Surg. 140: 775, 1954.
4. Zollinger, R. M., Keith, L. M. Jr., and Ellison, E. H.: Pancreatitis, New Eng. J. of Med. 251: 497, 1954.
5. Puestow, C. B.: Discussion of Paper by Hardy, J. D. and Bowlin, J. W. Ann. Surg. 145: 870, 1957.

800 N.E. 13th, Oklahoma City, Oklahoma



## ABSTRACTS

### Serum Magnesium in Renal Diseases

WILLIAM O. SMITH,\* and JAMES F. HAMMARSTEN.\*\*

A.M.A. Arch. Int. Med. 102: 5-9, July, 1958

Despite a great deal of investigation the central nervous system depression of uremia has not been explained. In view of the known depressive effects of magnesium on the central nervous system we thought it advisable to study serum levels of this cation in uremic patients.

Serum magnesium levels of patients with chronic renal disease were compared to those of 40 healthy men. The patients were divided into three groups: those with no azotemia (NPN < 45), those with azotemia but without CNS depression, and those with uremia and CNS depression.

The patients without azotemia occasionally had extremely low magnesium values. Azotemic patients had elevated values. Patients with uremia and CNS depression had extremely high values.

It was concluded that hypermagnesemia may contribute to the somnolence and eventual coma of uremia. Magnesium administration in any form is contraindicated in azotemia.

\*Assistant Professor of Medicine, University of Oklahoma School of Medicine; Assistant Chief Radioisotope Service, Veterans Administration Hospital.

\*\*Associate Professor of Medicine, University of Oklahoma School of Medicine, Chief Medical Service, Veterans Administration Hospital.

### Bronchopulmonary Sequestration in Infancy and Childhood

CHARLES L. WARNER,\* ROBERT L. BRITT,\*\* and HARRIS D. RILEY, Jr.\*\*\*

The Journal of Pediatrics, 53: 521-528, 1958

Bronchopulmonary sequestration is a congenital pulmonary extipia or sequestration associated with an anomalous artery, usually originating from the aorta. Two cases, one intralobar and the other extralobar in type, occurring in children are reported. The latter was associated with congenital absence of the pericardium; both patients were cured by surgical extirpation of the involved segment. A selected review of the literature emphasizing the various theories as to embryological origin, pathology, and clinical manifestations of bronchopulmonary sequestration is presented.

\*Department of Pediatrics, Wellborn Clinic, Evansville, Indiana.

\*\*Department of Pediatrics, Wellborn Clinic, Evansville, Indiana.

\*\*\*Professor of Pediatrics, University of Oklahoma School of Medicine.

### A Method of Eliminating Air Bubbles In a Bubble-Type Oxygenator

MARY LOU FAGGELLA,\* M. N. ZUHDI,\*\* A. E. GREER,\*\*\* J. M. CAREY,\*\*\*\* and J. A. SCHILLING.\*\*\*\*\*

American Journal of Surgery, 96: 696-697, November, 1958

The DeWall-Lillehei oxygenator for direct vision intracardiac surgery is autoclavable, easily assembled, disposable, efficient and dependable. It is the system employed at the University of Oklahoma Medical Center at the present time. The only alteration made in the DeWall-Lillehei oxygenator is in the type of filter placed between the helix and the arterial pump head. The filter used is a sterile, pyrogen-free, disposable, double metal filter, which was employed at the suggestion of DeWall. Eliminating the air bubbles from the helix and filter is an essential step before the beginning of a perfusion. This is usually accomplished by manual endeavors requiring anywhere from fifteen to thirty minutes. A technic has been developed to eliminate this difficulty.

\*Registered Nurse, University of Oklahoma Medical Center.

\*\*Resident in Surgery, University of Oklahoma Medical Center.

\*\*\*Assistant Professor of Surgery, University of Oklahoma Medical Center.

\*\*\*\*Instructor in Surgery, University of Oklahoma Medical Center.

\*\*\*\*\*Professor of Surgery, University of Oklahoma Medical Center.

### Generalized Cytomegalic Inclusion Disease, With Emphasis on Roentgen Diagnosis

JOSEPH H. ALLEN, Jr.,\* and HARRIS D. RILEY, Jr.\*\*

Radiology, 71: 257-262, August, 1958

1. Although salivary gland infection is poorly understood in many situations, the neonatal primary form, so-called generalized cytomegalic inclusion disease, has emerged as a clear entity.

2. The disease is probably acquired transplacentally, and may involve a few or almost all organ systems.

3. Brain involvement frequently is manifested by calcification around the lateral ventricles, which if present is virtually diagnostic. Signs of brain atrophy are also commonly seen.

4. Marked diffuse bony sclerosis may be demonstrable at birth with atrophic changes becoming apparent in later months. These are probably non-specific findings.

\*Department of Radiology and Pediatrics, Vanderbilt University School of Medicine, Nashville, Tennessee.

\*\*Professor of Pediatrics, University of Oklahoma School of Medicine.



## **Creatine-Phosphate Utilization by Muscle Extracts of Rabbits on Vitamin E-Deficient Diets**

MARY CARPENTER,\* PAUL McCAY,\*\* and RANWEL CAPUTTO.\*\*\*

Proceedings of the Society for Experimental Biology and Medicine, 97: 205-209, 1958

A method for determination of the transfer of phosphate from creatine-phosphate to the hexosemonophosphates is described. It has been found that this transference is decreased in the muscle of rabbits fed tocopherol-deficient diets at a time when phosphoglucomutase activity and glycolysis are normal. The decrease in transference is not corrected by addition of ATP. ATP added at concentrations above 0.004 M inhibits phosphoglucomutase.

\*Biochemist, Biochemistry Section, Oklahoma Medical Research Foundation.

\*\*Instructor in Research Physiology, University of Oklahoma School of Medicine, and Assistant Head of Department of Biochemistry, Oklahoma Medical Research Foundation.

\*\*\*Associate Professor of Research Biochemistry, University of Oklahoma School of Medicine, and Head of Department of Biochemistry, Oklahoma Medical Research Foundation.

## **Relationship Between Salt Tolerance and Resistance to Chloramphenicol in *Staphylococcus Pyogenes***

R. E. BOWLING\* and H. H. RAMSEY.\*\*

Proceedings of the Society of Experimental Biology and Medicine, 98: 208, 1958

A chloramphenicol-resistant strain of *S. pyogenes* is more sensitive to the inhibitory influence of NaCl and KCl than is its sensitive counterpart.

Restoration of salt tolerance in the chloramphenicol-resistant organism results in a concomitant decrease in chloramphenicol resistance.

The inhibitory influence of chloramphenicol and salts are additive in most instances, sometimes synergistic, and never antagonistic.

\*Graduate student; Present address, University of Arkansas Medical Center.

\*\*Formerly Associate Professor of Microbiology, University of Oklahoma School of Medicine.

## **STUDENT RESEARCH**

A number of student fellowships are available each year. These permit a few students to pursue an investigation of their own under the guidance of a member of the faculty. These studies are usually done in the evenings and on week-ends since the medical school curriculum provides an elective period of only two weeks. Despite the limited time many of the investigators are first rate. Some obviously are relegated to the archives of unpublished work. In many students the spirit of inquiry first becomes apparent during these fellowships. It would be difficult to measure the effect of the experience in terms of published works only. However, significant contributions to the literature have been made by students. The following abstracts represent work performed by the authors when they were medical students under the supervision of James Hagans.

A controlled study was undertaken to ascertain the ability of Probanthine and of Atropine to effectively inhibit the gastric stimulatory effects of i.m. caffeine, i.v. reserpine, s.c. histamine, and i.v. insulin in healthy human volunteer subjects. The inhibitory agents rather clearly blocked the gastric stimulatory effects of caffeine and of insulin hypoglycemia, but only slightly altered those of histamine and reserpine. The importance of recording not only volume of gastric juice and its concentration of acidity, but also the

total output of acid (i.e. reflecting parietal cell activity) was stressed.

It was concluded that histamine and reserpine, unlike caffeine and insulin, exert their gastric stimulatory effects primarily through pathways other than the parasympathetic nervous system, and thus their effects were little altered by adequate parasympathetic blockade.

1. "The Comparative Effects of Atropine and Probanthine on the Stimulated Human Stomach" by Robert L. Rock and George V. Rohrer. *The American Journal of Digestive Diseases*. Vol. 3, No. 8, pp. 584-593, August 1958.

Ten agents, including two placebos, were tested under controlled double blind conditions for their effectiveness as mydriatic or cycloplegic agents. Pupil size, response to light, ability to read a Snellen eye chart and intraocular tension were measured before and 40 minutes after medication. The intraocular tension was not significantly altered by any agent tested. Neither placebo led to significant alterations in pupil size or ability to read. Atropine, homatropine, Scopolamine, and Cyclogyl were found to be effective mydriatic and cycloplegic agents in white subjects with blue and brown eyes and in Negro subjects with dark eyes. The latter two were less potent in the more heavily pigmented eyes. Neosynephrine and Paredrine were found to induce significant mydriasis, but not cycloplegia. Ephedrine induced significant mydriasis in white subjects with blue and brown eyes, but failed completely in Negro subjects with dark eyes. Pilocarpine induced significant myosis in all three eye type groups, but was considerably less potent in Negro subjects with dark eyes.

1. "A Comparative study of Mydriatic and Cycloplegic Agents" by Richard F. Barbee, M.D., and William O. Smith, Jr., M.D., *American Journal of Ophthalmology*. Vol. 44, pp. 617-622, November, 1957.

### New Appointments Named By Board of Regents

Kirk T. Mosley, M.D., D.P.H., chairman of the Department of Preventive Medicine and Public Health since 1952, has been appointed associate dean of the University of Oklahoma School of Medicine in charge of special training and research programs.



This is an additional, part-time position on the administrative staff. Doctor Mosley will continue as department chairman.

His appointment was approved by the University of Oklahoma regents, who also named William W. Schottstaedt, M.D., assistant professor, vice-chairman of the Department of Preventive Medicine and Public Health.

A graduate of Tulane University School of Medicine, Doctor Mosley earned his Master of Public Health and Doctor of Public Health degrees at Harvard School of Public Health. He is a former medical missionary to China, county public health unit director (Arkansas), and army medical officer. Doctor Mosley taught epidemiology at Vanderbilt and Tulane before coming to Oklahoma.

Doctor Schottstaedt, a 1948 graduate of the University of California School of Medicine, came to the Medical Center in 1953.

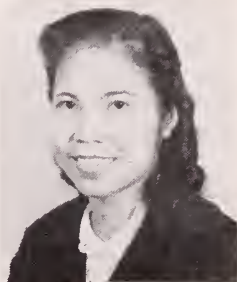
In other recent action the regents appointed Wayne Henry Schultz, M.D., clinical assistant in radiology, and Leticia Virata Espaldon, M.D., clinical assistant in anesthesiology.



Doctor Schultz received his M.D. degree at Washington School of Medicine, St. Louis. He interned at Duke University Hospital, then completed residency training at Mallin-

ckrodt Institute of Radiology, (Washington University) and M. D. Anderson Cancer hospital, University of Texas.

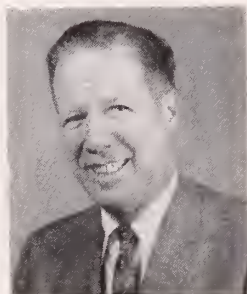
Doctor Espaldon won her M.D. at the University of Santo Tomas and interned at the University in Manila. Additional training was in the Research hospital, Kansas City, Missouri, and at University of Oklahoma hospitals, where she served a two-year residency.



ESPALDON

### Springall Is New VA Appointment

New director of professional services at the Oklahoma City Veterans Hospital is Arthur N. Springall, M.D., recently appointed assistant professor of preventive medicine and public health at the University of Oklahoma School of Medicine.



SPRINGALL

Doctor Springall was assistant secretary of AMA's Council on Medical Education, in charge of intern training programs and coordination of residency programs, for four years prior to coming to Oklahoma City.

A graduate of Austin college, Sherman, Texas, with a master's degree in psychology, Doctor Springall earned his M.D. degree at the University of Texas Medical Branch, then a Master of Public Health at Yale and a Master of Science in Health and Physical Education at George Williams College, Chicago.

He interned and trained as a resident at Gorgas Hospital, Ancon Canal Zone, later serving as quarantine physician, Panama Canal health department, and assistant superintendent of Gorgas Hospital.



## The Residency Problem in Oklahoma

THE RESIDENCY PROGRAMS in the State of Oklahoma are in serious trouble for reasons given in this article.

The rapid advances in medicine have, of necessity, led to rapidly increasing specialization, a fact which some may deplore, others applaud, but all must recognize. Various specialty boards are concerned with the training and the qualification of specialists and demand of their candidates a certain number of years to be spent in residencies in hospitals whose training programs have been approved by the Joint Commission on Accreditation.

While such specialty training is the main objective of a residency program, it brings in return great benefits to those carrying it out as it is invaluable for rendering better scientific patient care as well as for the training of interns. Unfortunately, not enough American-trained physicians are available to fill all vacant resident positions. It is irrelevant whether this shortage is relative because too many residencies are available; or absolute because not enough physicians are available. The fact remains that on an average only 80% of available residencies were filled in 1956 and that of these 80% a large number was filled with foreign graduates. In other specialties, such as pediatrics, neurosurgery, plastic surgery, ophthalmology and pathology even fewer American graduates are available. According to AMA statistics, only 30% of available pathology residencies were filled in 1956 by American graduates; 34% by foreign graduates; and 36% remained vacant. Our own experience corroborates these facts even more drastically, since after three months of advertising for pathology resi-

LEO LOWBEER, M.D.

In 1927, Leo Lowbeer, M.D., graduated from the University of Vienna Medical School. After practicing for a while in Vienna, Doctor Lowbeer came to America where he has since been certified by the American Board of Pathology.

Doctor Lowbeer holds memberships in the College of American Pathologists, American Association of Pathologists and Bacteriologists and American Society of Clinical Pathologists. He is also a visiting lecturer in the Department of Pathology, University of Oklahoma School of Medicine.

A member of the Red Cross and Postgraduate Committees of the Tulsa County Medical Society, Doctor Lowbeer is also an Alternate Delegate to the Oklahoma State Medical Association from Tulsa County.

dents in the *Journal of the American Medical Association*, about 100 applications were received, of which only eight came from American graduates none of whom was a serious candidate. This experience is shared by all teaching hospitals in the United States.

In about 40 states these resident positions are, in part, filled with foreign graduates since these states either do not require licenses for their residents, or else give temporary licenses for the training period not dependent upon American citizenship. In Oklahoma and only seven other states, residents have to have a license which is contingent upon American citizenship; foreign graduates are, therefore, excluded and many positions remain vacant.

While the appointment of foreign graduates does not contribute to train more Ameri-



cans in specialties, it does make it possible for teaching hospitals to carry out their programs in the various specialties thereby providing better patient care and a better education for interns. Without the help of residents, departments such as those of pediatrics, neurosurgery, pathology, etc., understaffed as they are, simply are incapable of properly handling their workload. While the specialty training of foreign graduates does not increase the number of American specialists, it contributes immensely to the training of foreign graduates who then return to their native countries as goodwill ambassadors for the United States and its medical achievements. Thereby medical standards in their countries are raised and their patients helped. This way everybody benefits. What then are the reasons for restrictive legislations such as exist in Oklahoma and seven other states and which prevent the appointment of foreign graduates as residents? One reason is the difficulty of evaluating the education standards of foreign medical schools and the fear that poorly trained residents could be detrimental in responsible residency positions. In the past, it was up to the staffs of teaching hospitals to decide upon the qualifications of foreign graduates and their decision was usually based upon the internship records of the candidates, most of which were obtained in the United States. In general, while the average medical education of foreign physicians was below American standards, it has been the experience of most hospitals, or rather their department heads, that their performance was very creditable and useful; that language difficulties disappeared or diminished within a few months; and that far better departmental service could be rendered with even poorer trained residents than with none at all, which actually was the alternative. It also should be kept in mind that it is the better trained and more ambitious foreign physicians who apply for residencies in the United States.

Rather recently a new AMA sponsored "Educational Council for Foreign Medical Graduates" has been formed which evaluates credentials and gives examinations to foreign physicians in English as well as in medicine, in their native countries as well as in

the United States. Sooner or later, these evaluations will be required of foreign candidates for residencies.

A second reason for restrictive legislation is the fear that poorer trained foreign graduates when given even temporary licenses for residency purposes, will somehow settle in the United States to practice medicine, and thereby lower the standards of medicine. Such fears are unjustified since the overwhelming majority of foreign physicians enter the States on the basis of the Exchange Visitor Program and are not permitted by the State Department, nor by their native states, to stay here beyond their training period.

A third reason for restrictive legislation, linked with the second one, is that some understaffed hospitals would want to hire foreign physicians at low salaries if they are given temporary licenses to practice medicine. Such practice should be strongly discouraged but is easily prevented by limiting the appointment of foreign graduates to teaching hospitals.

It is perhaps pertinent to point out that any reference to restrictions in the selection of residents is omitted by the *Journal of the American Medical Association* in its advertisements since as one of the pamphlets states, such advertised restrictions are unlawful in a number of states.

The necessity of filling vacant residencies in a teaching hospital with foreign graduates is recognized even in Oklahoma where the University Medical School has had the privilege to appoint as residents whomever it cared to appoint. It is submitted that despite the obvious superiority of the University as a training center, the same privilege should be given to the few other teaching hospitals in Oklahoma, some of which are growing by leaps and bounds and which with proper staffing can contribute more to the medical progress and prestige of our state than at present.

### Summary and Conclusions

#### *The Problem*

A. Not nearly enough American-trained physicians are available to carry out hospital

resident programs. In order to carry out these programs, practically all AMA approved hospitals are appointing foreign graduates as residents.

B. The State of Oklahoma, together with only seven other states, requires that residents be licensed. Such license, even if temporary, is at present given on the same basis as a permanent medical license in Oklahoma, requiring American citizenship and proof of adequate medical education. Obviously, foreign residents cannot qualify because they are not American citizens and because little is known about their medical schools.

### *The Consequences*

The residency programs in Oklahoma in certain specialties (particularly Pathology, Pediatrics, Ophthalmology, Plastic Surgery, et al.) are seriously jeopardized except at the University Hospital. This situation is bound to become worse as hospitals get bigger while the supply of residents remains the same.

While this seems to concern primarily the few teaching hospitals in Oklahoma which are accredited for residency training, it seriously affects the quality of medicine available in Oklahoma since without residents the various departments involved cannot function properly, thereby seriously hampering the services rendered to their patients. In addition, a valuable opportunity is thereby missed in Oklahoma to contribute to the improvement of medicine abroad and create ambassadors of good will for the United States, in general, and for Oklahoma, in particular. Therefore, while only five hospitals are involved in Oklahoma, these are the teaching hospitals on which much of the prestige of Oklahoma medicine is based.

### *The Solution*

The following ways to solve the problem are proposed:

(1) Consider residents as post-graduate students of medicine who need no license since they work under the supervision of a licensed physician and specialist. Do not allow non-licensed residents to write pre-

scriptions, sign charts, operate alone, etc. Leave the details to the discretion of the staffs of the teaching hospitals as done in the majority of states. Issue licenses to these residents who are eligible for them under the present laws if they so desire, and give them those privileges which are dependent upon a license. *Or*

(2) Recognize the new Educational Council for Foreign Graduates by requiring evaluation and examination of foreign graduates by that Council.

On that basis, have the State Board of Medical Examiners issue a temporary license not bound by citizenship; only for the residency training period; only in teaching hospitals recognized for residency training; to be renewed annually.

A temporary license for residents as proposed and as given in 40 states could never be used as a permanent license to practice medicine in the United States. Furthermore, the overwhelming majority of foreign physicians who come to the States for postgraduate training, are forced by the State Department as well as by their native countries to return upon completion of their studies.

All opposition to change or amend the Medical Practice Law stems from the legitimate reluctance to admit for permanent medical practice foreign physicians whose training may be inferior, or at best unknown, to the State Board of Medical Examiners. The proposed changes would make an influx of foreign graduates on a permanent basis impossible. It would, however, promote improvement of the residency program in Oklahoma, which at present is most seriously jeopardized, and thereby, with the proposed safeguards, promote improvement of medicine and of medical care in Oklahoma. By helping foreign graduates who come to us for training, we are helping ourselves and will start doing what all the great hospitals throughout America have been forced and have found beneficial to do; beneficial to patients, to physicians, to the United States and to foreign countries.

1653 East 12th, Tulsa, Oklahoma

## Medical Aspects of Aging in Oklahoma and England

HERBERT KENT, M.D.\*

O.S.M.A. Committee on Health of the Aged

IF CHARLES DICKENS were alive today and visited the United States as he did in 1842, he could have written a dramatic and artistic story of our aged population. Although he realistically portrayed the sufferings of children in *Oliver Twist*, he might easily have paid similar attention to chronic invalidism in older people.

Another Englishman, William Henley, wrote brave words that have become as immortal as life, yet increasingly paradoxical by 20th century standards:

"And yet the menace of the years  
Finds and shall find me unafraid  
. . . I am the master of my fate  
The Captain of my soul."

After these lines were written, he lay for twenty-two months in the Edinburgh Royal Infirmary with tuberculosis. Without welfare assistance, he went on to become a famous editor!

Men of Henley's stature and philosophy are difficult to find in modern society. Pa-

ternalistic governmental trends in England and the United States are leading both great countries down the welfare path toward the destruction of their basic economic foundations.

Modern English society had its beginning around the 15th Century, while America's socio-economic development began several hundred years later. In spite of this great difference in chronological maturity, our country has not only accelerated its growth to the point of equalling or surpassing the desirable qualities of the old country—but it is also rapidly approaching an unfortunate realization of England's point of diminishing returns—socialism! A popular avenue toward this socialistic goal is founded upon the ascending growth of the "elder citizen" segment of our nation's population. Liberals, both in and out of government, have seized upon this admittedly complex and unsolved problem as an entrée to their ultimate "Utopia" of a complete welfare state; and they have done so with alarming effectiveness and unified tenacity.

Highlighting activities in this field is the Forand Bill; a bill, now resting in the House

\*Associate Professor, Department of Physical Medicine, University of Oklahoma School of Medicine.



Ways and Means Committee, which will provide medical, hospital and nursing care for some 13 million social security beneficiaries. Vociferously supported by labor and indirectly approved by the American Hospital Association, the bill has serious implications that organized medicine must solve if it is to maintain medical freedom and protect U. S. citizens from another form of governmental regimentation. There is nothing wrong with the purpose of the Forand Bill; it simply represents one solution to a problem that must be solved. If the aged group was receiving adequate health care, bills of this type would never have materialized.

Medicine cannot be so presumptuous as to think it can stand alone and repel every frontal attack by the growing bands of liberal marauders, particularly with a negative attitude. Where the product of its own achievements, an aging population, is involved, organized medicine is morally obligated to confront a legislative solution to the problem by presenting, with unity and tenacity, a positive program which will insure the well-being of this group without sacrificing the spirit of independence or sound governmental principle.

The American Medical Association has recognized its role of responsibility and, through its Committee on Aging, has initiated a nationwide program designed to thwart an economic evil by developing a health care system for our elder citizenry that is based upon sounder principles. The success of the AMA's program will divert this particular socialistic movement by stimulating state, community and individual responsibility toward the aging group; its failure will force the United States into step with England—and the resultant federal legislation will no doubt be the forerunner of a national program of socialized medicine!

#### **A Glance at England**

Ever since the National Health Service Act of 1946, which became effective July 5, 1948, hospital and specialist services of all kinds have been demanded by the British public with enthusiasm. Particularly in Lon-

don, practically all of the hospital, convalescent, rehabilitation and other institutional facilities have become congested by the swelling tide. The aged and chronically ill, many of whom were previously cared for by relatives, are now handed over to the government. As in the first year of the program, emergency patients are still routed from official to official. Elderly folks often are most apt to suffer for they cannot easily be screened by the Admitting Officer who must seek assistance from the general practitioner. Unfortunately, too, the GP's have been forced into disrepute. They are overworked, underpaid and restricted by regulations to the point that many have decided to leave the country. Crowded offices, excessive clerical work, delayed consultation and diagnostic services have tended to create a figure of a civil servant rather than a professional man. Clinical observation under these conditions has suffered. It is easier to refer a patient to an out-patient department as a substitute to evolving a management program for healing the aged sick. This in turn has over-burdened hospital facilities, and delayed reports from such referrals has exorably squeezed out the practitioner as a family physician. He no longer feels morally obligated for the relief of suffering. This disavowal has become a governmental headache. Loss of medical idealism is affecting the individual physician, and is particularly true of the younger men.

Following an internship, the newly qualified man in Great Britain has already lost one of his many freedoms. To hang up a shingle in an area one chooses is now illegal. Under the Act, local committee approval must be obtained first. These committees are constituted from physicians already in that community and it is easy to appreciate the local politics that prompts their decisions. The aim of these regulations, of course, is to encourage physicians to locate in "under-doctored" communities. However, at the same time, it serves to limit the opportunities for a new man to establish a practice in an area of his own choosing, regardless of desires or abilities.

In contrast to the London picture, here in Oklahoma, as elsewhere in the United

States, many of our peoples are enjoying better medical care than ever before. The best of our hospitals and the best of our physicians are very good indeed—equal, if not better, to any in the world. The individual physician, and especially the recent graduate, is free to accept patients anywhere and anytime. As long as he is a licensed practitioner, he may practice in the community of his choice. This freedom to practice is our most cherished possession.

Our voluntary insurance, such as Blue Cross-Blue Shield and private insurance plans, is without parallel in medical insurance history. Prepaid hospital and medical care yearly account for greater and greater costs of illnesses. Slowly we are solving our other problems, such as the needs for chronic illness, the handicapped and a gradually increasing older population.

In principal cities such as Tulsa and Oklahoma City, we have first-rate hospitals, specialized institutions and nursing homes to take care of the aged, infirm and chronic sick. A 1958 statewide survey by the Oklahoma Nursing Home Association indicated almost 8,000 beds (83% occupancy) were available in addition to institutional facilities. Admission of patients is available to all through the family physician. Many of the physicians also have a voice in the policies and practices of such facilities. In addition, when patients are referred for services or consultation, reports are prompt and efficient in accord with sound business practices. Since such medical costs are private for the most part, these are kept, as a rule, within the national averages.

#### **AMA Attitude**

At its House of Delegates meeting in June, 1958, the American Medical Association admitted that official medical society recognition of the problems of aging and the aged had been slow to develop. To accelerate such recognition and to provide state and local contacts for the AMA Committee on Aging, all state medical associations have been urged to establish similar committees.

To assist the local groups, the AMA developed suggested guides for the formulation

and operation of state and county committees. Among these suggestions, was an outline to medicine's blueprint for "The New Era of Aging":

1) Stimulation of a realistic attitude towards aging.

2) Promotion of health maintenance programs and wider use of restorative and rehabilitation services.

3) Extension of effective methods of financing health care for persons over 65.

4) Expansion of skilled personnel training programs and improvement of medical and related facilities for older people.

5) Amplification of medical and socioeconomic research in problems of the aging.

6) Leadership and cooperation in community activities for senior citizens.

#### **OSMA Steps Forward**

In response to the AMA request, state president E. C. Mohler, M.D., appointed Hayden H. Donahue, M.D., as chairman of the Oklahoma Committee on Health Care of the Aged and asked him to develop a program for the state association. It soon became evident to Doctor Donahue that the overall problem was multi-faceted and that sub-committees would be necessary for an effective program. He therefore created a general committee and five sub-committees to cover the following areas: Rehabilitation and Restoration; Insurance and Retirement; Public Health and Home Care; Nursing Homes; and Research.

The physicians serving with Doctor Donahue and his various committees have a Herculean task. They must undertake the solution of a growing and urgent problem; a problem that will not solve itself and one upon which the medical profession must place tremendous and immediate emphasis. Physicians are compelled to make a concerted effort, individually and collectively, to answer the many questions being raised about the health care status of our aging population and to make concrete recommendations for corrective action.

Do we have a positive health program for



our older citizens that is second to none in the world? Our ingenuity for keeping our professional freedom is being tested on this rock in the stream. Will we founder or pass over to a clear journey ahead? Already additional hazards are visible amongst the lawmakers. A new Congress is making extensive preparations to correct a deficit in the medical care of the aged. Do we have an answer the "voluntary way?"

Medicine today is at the crossroads. England and other components of the British Common Wealth, Scandanavia and some of the continental democracies, have made their choice. We in the United States stand where Britain stood almost 20 years ago. There have been changes, but basic precepts remain. Do we have the capacity for mastering our fate? Abroad there are many doubts. Recent visits to our shores by respectable and well known Britons have presented factual and clear evidence of the swelling tide towards a national federal medical service. Are we heeding the dire forebodings of our good friends and colleagues?

Just to pause and listen to the remarks of Sir Heneage Ogilvie,<sup>1</sup> Surgeon to Guy's Hospital, on the Welfare State is revealing:

"The road of scientific advance is marked by milestones on which are inscribed the names of men of genius: but the man of genius can do no more than find the key that fits the lock of a new door. To turn that key, to push open that door, to explore the passages to which it leads and find which of them are profitable, and to unlock further doors as they are encountered, he needs help.

"As a profession, we stand or fall by each integral physician to develop that apparatus, to answer the call of our times, to provide a workable solution for a nation that is

gradually becoming one of an older population needing supplemental health." He continues:

"This question confronts the American medical profession today. The more courageous among them realize that now while the sun of prosperity still shines, they have a unique opportunity to plan a health service along lines of their own choosing, to work with their government as partners rather than as servants, to extend their research on national lines to unimagined goals. Others, like Gallio, care for none of these things, but shut their eyes to the facts around them."

Oklahoma physicians must take a good objective look at themselves and their present position, as if through the eyes of the public and the lawmakers. It is apparent that a tremendous problem has presented itself; a problem that must have our immediate attention if we are to have any voice in its solution.

It has been said that history has established a cycle of development in which the people progressively pass through stages of slavery, hope, revolution, prosperity and apathy. If we are to resign ourselves to the state of "apathetic" development, then we are but one short step from slavery! Will we take advantage of this unique opportunity to plan an active role in the planning of our future and the future of those we serve—or will we slumber with Gallio and shut our eyes to the facts around us?

*This is the first of a series of special articles to be presented by members of the Committee on Health Care of the Aged. Next month an article by John W. DeVore, M.D. will illustrate what one community is doing about the aging problem.*

1. Ogilvie, Sir Heneage: The Granny Racket, Brit. Med J. March 25, 1950, pp. 683-685.





IN DEBILITATING DISEASE

Patients receiving

# NILEVAR®

Eat more...

Feel better...

Recover faster

Compared to control patients, those receiving Nilevar (brand of norethandrolone) have repeatedly demonstrated more rapid and more complete recovery from serious acute illness and increased comfort and well-being in chronic illness.

A multitude of case histories are now adding individual clinical color to the earlier controlled investigations which defined the actions of Nilevar as an effective aid in reversing negative nitrogen balance and in building protein tissue.

In typical case reports such gratifying comments as these appear:

**Underweight**—"Appetite considerably increased within one week. Sense of well-being and vigor increased along with increased appetite."

**Prematurity** (Birth weight: 2 pounds, 4 ounces) — "Gradual improvement in appetite and capacity for formula. . . . Excellent progress and weight gain for a very immature infant."

**Carcinoma of the Uterus**—"Within four days appetite became excellent, took full diet. . . . More ambition while on Nilevar. Enjoys life. Takes part in church and other social affairs."

**Third Degree Burn**—" . . . soon began eating all that was offered. . . . Began to show signs of hope for recovery. . . . Perhaps one of the greatest changes was in the appearance of his wounds which were so very much improved."

The dosage for adults is 20 to 30 mg. daily in single courses no longer than three months. For children the daily dosage is 0.5 mg. per kilogram of body weight, in single courses no longer than three months.

Nilevar is supplied in tablets of 10 mg., ampuls of 25 mg. (1 cc.) and Nilevar Drops of 0.25 mg. per drop.

---

G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

SEARLE

# PRESIDENT'S LETTER



Without much question, the problem of prepaid medical care for the age sixty-five plus and low income groups is the most pressing issue facing organized medicine. Next year is another election year and one in which the proponents of federalized medical care will press the issue with all their force.

This challenge to the free enterprise of medicine became acute over a year ago with the writing of the Forand Bill, which now rests in the Ways and Means Committee but is by no means a forgotten issue. The implications that this type of legislation holds are well known to most of us, and should such a proposed bill become law, American medicine will be swept into the stream of socialism beyond the point of return.

Certain facts expressed through public opinion have been made clear to us. First, society will not be satisfied until a medical care program for the aged and low income groups has been provided, regardless of the source; and secondly, there are only two sources sufficiently capable of providing such coverage on a broad basis—the Federal Government or the integrity of Free Enterprise through Organized Medicine.

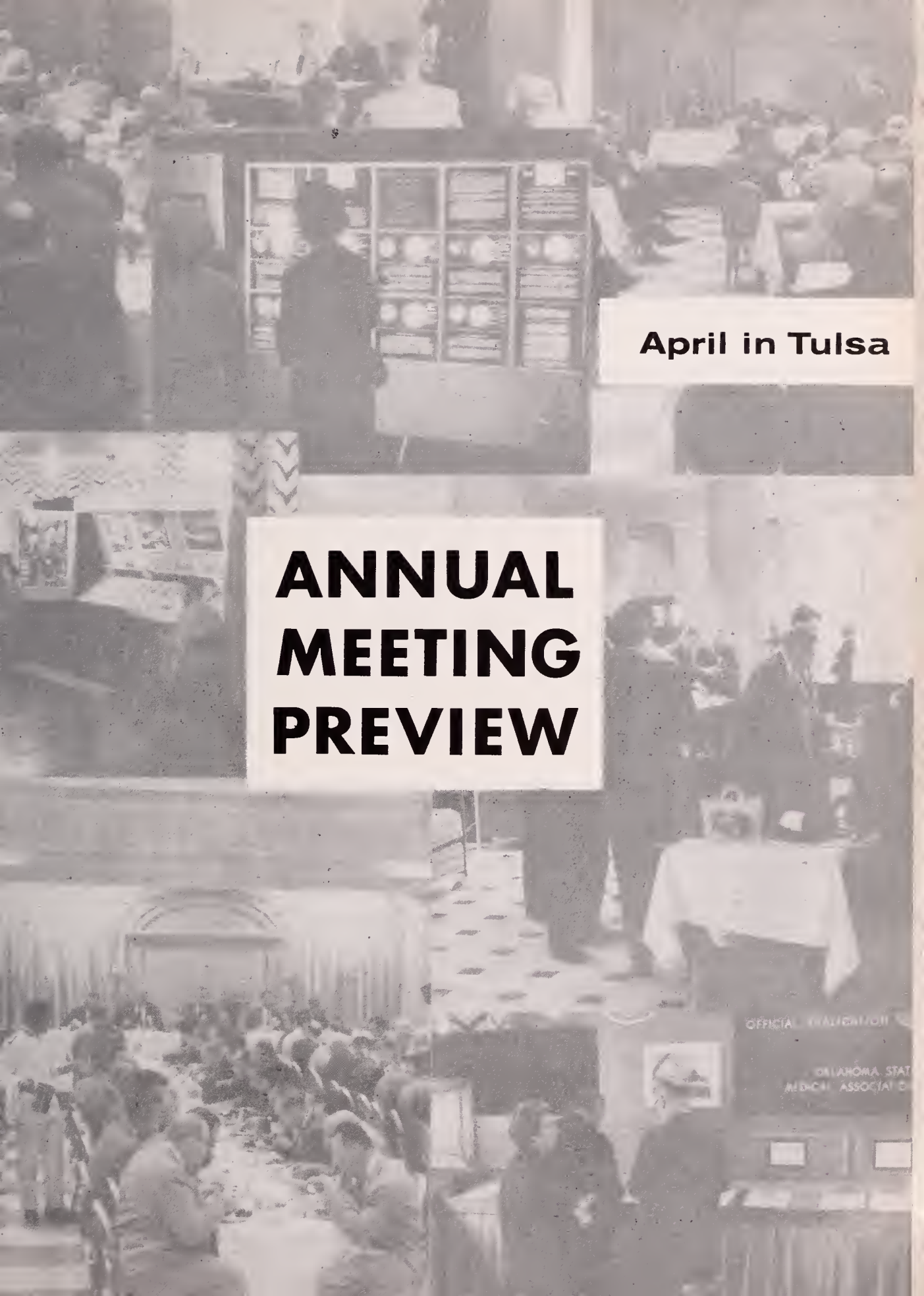
How then is Organized Medicine to meet this demand? Or is it our responsibility to solve? To answer these questions it might be well to turn back the time twenty-five years and look at the picture of hospital and medical care as it was in the depression. At that time private insurance was asked to provide a prepayment plan. The reply was, "It can't be done," yet, through the efforts of a few determined Oklahoma doctors, Blue Cross was organized and has successfully led the way to the present enrollment of 50,000,000 satisfied members. Certainly we can again meet this crisis through our own creation—Blue Cross and Blue Shield. If Medicine doesn't take the initiative, the government will!

The American Medical Association no longer views this problem in the light of speculation or even just positive thinking, but one of immediate action. That is why the governing body has recommended the acceptance of a prepayment service type plan for our Senior Citizens and the low income groups, and it is the medical profession, along with Blue Cross and Blue Shield, that has been asked to fulfill this mission.

It is now up to the doctors of Oklahoma to make a decision. Are we going to meet the challenge and help write an acceptable service contract for this group of our citizens this year? Or are we going to let the Department of Health, Education and Welfare write it for us by 1961?

A handwritten signature in dark ink, appearing to read "E. C. Mohler, M.D.", with a stylized flourish at the end.

E. C. MOHLER, M.D.  
President



**April in Tulsa**

# **ANNUAL MEETING PREVIEW**

OFFICIAL EXHIBITION

OKLAHOMA STATE  
MEDICAL ASSOCIATION



# Oklahoma State Medical Association



E. C. Mohler, M.D.  
Ponca City  
President



Alfred T. Baker, M.D.  
Durant  
President-Elect



Johnny A. Blue, M.D.  
Oklahoma City  
Secretary-Treasurer

## OFFICERS

**President**—E. C. Mohler, M.D., Ponca City  
**President-Elect**—Alfred T. Baker, M.D., Durant  
**Vice-President**—F. R. First, M.D., Checotah  
**Secretary-Treasurer**—Johnny A. Blue, M.D., Oklahoma City  
**Delegate to the A.M.A.**—Wilkie D. Hoover, M.D., Tulsa  
**Alternate Delegate to the A.M.A.**—Joe L. Duer, M.D., Woodward  
**Delegate to the A.M.A.**—Malcom E. Phelps, M.D., El Reno  
**Alternate Delegate to the A.M.A.**—R. Q. Goodwin, M.D., Oklahoma City  
**Speaker of the House of Delegates**—Clinton Gallaher, M.D., Shawnee  
**Vice-Speaker**—J. Hoyle Carlock, M.D., Ardmore  
**Editor-in-Chief**—Ben H. Nicholson, M.D.

## COUNCILORS

### District 1: Craig, Delaware, Mayes, Nowata, Ottawa, Rogers, Washington

Councilor (1959).....J. E. Highland, M.D., Miami  
Councilor (1959).....L. B. Word, M.D., Bartlesville

### District 2: Kay, Noble, Osage, Pawnee, Payne

Councilor (1960).....Powell Fry, M.D., Stillwater  
Councilor (1960).....J. W. Murphree, M.D., Ponca City

### District 3: Garfield, Grant, Kingfisher, Logan

Councilor (1961).....C. M. Hodgson, M.D., Kingfisher  
Councilor (1961).....Henry T. Russell, M.D., Enid

### District 4: Alfalfa, Beaver, Cimarron, Ellis, Harper, Major, Texas, Woods, Woodward

Councilor (1959).....Joe L. Duer, M.D., Woodward  
Councilor (1959).....C. A. Traverse, M.D., Alva

### District 5: Beckham, Blaine, Canadian, Custer, Dewey, Roger Mills

Councilor (1960).....Ross Deputy, M.D., Clinton  
Councilor (1960).....C. Riley Strong, M.D., El Reno

### District 6: Oklahoma

Councilors (1961).....Peter Russo, M.D., Oklahoma City  
Councilors (1961).....E. E. Shircliff, M.D., Oklahoma City

### District 7: Cleveland, Creek, Lincoln, Okfusfee, Pottawatomie, Seminole

Councilor (1959).....C. C. Young, M.D., Shawnee  
Councilor (1959).....E. K. Norfleet, M.D., Bristow

### District 8: Tulsa

Councilor (1960).....Wendell L. Smith, M.D., Tulsa  
Councilor (1960).....Marshall O. Hart, M.D., Tulsa

### District 9: Adair, Cherokee, McIntosh, Muskogee, Okmulgee, Sequoyah, Wagoner

Councilor (1961).....R. L. Currie, M.D., Sallisaw  
Councilor (1961).....Burdge F. Green, M.D., Stilwell

### District 10: Haskell, Hughes, Latimer, LeFlore, Pittsburg

Councilor (1959).....Paul Kernek, M.D., Holdenville  
Councilor (1959).....C. E. Lively, M.D., McAlester

### District 11: Atoka, Bryan, Choctaw, Coal, McCurtain, Pushmataha

Councilor (1960).....Thomas E. Rhea, M.D., Idabel  
Councilor (1960).....W. A. Hyde, M.D., Durant

### District 12: Carter, Garvin, Johnston, Love, Marshall, McClain, Murray, Pontotoc

Councilor (1961).....William T. Gill, M.D., Ada  
Councilor (1961).....M. E. Robberson, M.D., Wynnewood

### District 13: Caddo, Comanche, Cotton, Grady, Jefferson, Stephens

Councilor (1959).....John B. Miles, M.D., Anadarko  
Councilor (1959).....Charles E. Green, M.D., Lawton

### District 14: Greer, Harmon, Jackson, Kiowa, Tillman, Washita

Councilor (1960).....J. B. Hollis, M.D., Mangum  
Councilor (1960).....R. R. Hannas, M.D., Sentinel

## ANNUAL MEETING COMMITTEES



Edward L. Moore, M.D.  
General Chairman



Byron W. Steele, Jr., M.D.  
Program Committee Chairman

Edward L. Moore, M.D., *General Chairman*

### PROGRAM COMMITTEE

Byron W. Steele, Jr., M.D., *Chairman*  
William Orlando Smith, M.D.  
N. C. Gaddis, M.D.

### REGISTRATION and HOTELS

Edwin R. Shapard, M.D., *Chairman*  
V. William Wood, M.D.  
James E. Kraft, M.D.

### SOCIAL EVENTS

Benjamin W. Ward, M.D., *Chairman*  
Rayburne W. Goen, M.D.  
Robert W. Spencer, M.D.  
E. Malcom Stokes, M.D.

### MEDICAL MOTION PICTURES

William C. Pratt, M.D., *Chairman*  
Dixon N. Burns, M.D.  
Dean C. Walker, M.D.

### GOLF

William F. Thomas, Jr., M.D., *Chairman*  
Simon Pollack, M.D.  
Worth M. Gross, M.D.  
William M. Benzing, Jr., M.D.

### COMMERCIAL and SCIENTIFIC EXHIBITS

H. Kenneth Ihrig, M.D., *Chairman*  
C. Thomas Thompson, M.D.  
Norman L. Dunitz, M.D.

### PUBLICITY

Marshall O. Hart, M.D., *Chairman*  
C. S. Lewis, Jr., M.D.  
Raymond M. Michols, M.D.  
Harlan Thomas, M.D.  
Terrell Covington, Jr., M.D.

### CONVENTION MANAGER

Jack Spears, *Executive Secretary*  
Tulsa County Medical Society

# DIGEST OF EVENTS

## HEADQUARTERS HOTEL

The Mayo, Tulsa's largest and most attractive hotel, will be headquarters for the 53rd Annual Meeting of the Oklahoma State Medical Association.

## HOTEL ACCOMMODATIONS

Physicians are urged to write now for hotel accommodations by addressing: Hotels Committee, Tulsa County Medical Society, B9 Medical Arts Building, Tulsa 19, Oklahoma. Please do not write hotels direct. The Tulsa Hotel Association requires that all reservations be handled through a central committee. Please state type of accommodations desired, date and time of arrival and departure, and choice of hotels (Adams, Alvin, Bliss, Mayo, Tulsa). Reservations will be filled in the order of receipt, and most convention visitors will be housed at The Mayo. A very limited number of two-bedroom suites are available at The Mayo; there are no one-bedroom suites available. All reservations will be confirmed in writing. Tulsa has a number of attractive motels and the Hotels Committee will be happy to book motel accommodations as desired.

## REGISTRATION

Registration will open Monday, April 20, 1959, at 8:00 a.m. in the Main Lobby of The Mayo. Delegates may register, both for the House of Delegates and the General Meeting, on Sunday, April 19, 1959, on the Mezzanine of The Mayo beginning at 9:00 a.m. Physicians are asked to present their 1959 membership cards when registering. Guest



privileges will be accorded medical officers of the Armed Forces, interns and residents, and physicians who are members of other state medical associations. All other persons will be registered by permission of the Hotels & Registration Committee.

## COUNCIL

The Council of the Oklahoma State Medical Association will meet on Saturday, April 18, 1959, at 1:00 p.m. in the Emerald Room of The Mayo.

## HOUSE OF DELEGATES

The House of Delegates of the Oklahoma State Medical Association will meet on Sunday, April 19, 1959, at 10:00 a.m. in the Pompeian Room of The Mayo. The session will adjourn for lunch and reconvene at an hour to be announced by the Speaker. Doctor Gunnar Gundersen of LaCrosse, Wisconsin, President of the American Medical Association, will speak before the House of Delegates on the current activities of the AMA.



## SCIENTIFIC EXHIBITS

A selection of attractive exhibits by individual physicians and medical and health organizations will be on display in the Ivory Room of The Mayo, Monday and Tuesday, April 20-21, from 8:30 a.m. to 5:00 p.m., and Wednesday, April 22, from 8:30 a.m. to 12:00 Noon. Convention visitors are urged to inspect these educational exhibits. A complete list of the scientific exhibits appears elsewhere in this issue of *The Journal*.

## TECHNICAL EXHIBITS

Forty-three displays by firms offering products and services of interest to Oklahoma doctors will be a special feature of the 53rd Annual Meeting. The technical exhibit is divided into two sections, one in the Main Lobby of The Mayo adjacent to General Registration, and one on the 16th Floor of The Mayo adjacent to the Crystal Ballroom. Exhibits will be open from 8:30 a.m. to 5:00 p.m., Monday and Tuesday, April 20-21, and from 8:30 a.m. to 12:30 p.m. on Wednesday, April 22. A complete list of technical exhibitors appears elsewhere in this issue of *The Journal*. Physicians are urged to visit each exhibit and inspect the many products and services on display.

## PHYSICIANS HOBBY SHOW

The Annual Physicians Hobby Show, a delightful display of the crafts and hobbies of Oklahoma doctors, will be located in the Ivory Room of The Mayo. Sponsored by the Woman's Auxiliary, the Hobby Show invites displays from all State physicians.

## SCIENTIFIC SESSIONS

A general scientific session will be held each morning, Monday through Wednesday, in the Crystal Ballroom of The Mayo. There will be two afternoon sessions, one in the Crystal Ballroom and one in the Emerald Room of The Mayo. A complete program for the scientific sessions appears in this issue of *The Journal*.

## MEDICAL MOTION PICTURES

A selection of motion pictures will be shown each morning, Monday through Wednesday, April 20-22, in the Metropolitan Room of The Mayo, beginning at 9:00 a.m. A complete schedule of showings appears in

Room of The Mayo,  
beginning at 9:00 a.m.

## general information

this issue of *The Journal*. A limited number of films will be repeated, upon request, at the conclusion of the Wednesday showings. All films are sound and many are in color.

## ROUNDTABLE LUNCHEONS

Roundtable luncheons will be held on Monday and Tuesday, April 20-21; at 12:30 p.m. in the Pompeian Room of The Mayo. A panel of guest speakers will answer questions and discuss current topics of medical interest. Tickets should be purchased at the Registration Desk at the time of registering for the meeting.

## PAST-PRESIDENT'S BREAKFAST

The Annual Past President's Breakfast of the Oklahoma State Medical Association will be held on Tuesday, April 21, 8:00 a.m. in the French Room of The Mayo.

## ANNUAL GOLF TOURNAMENT

The Annual Golf Tournament will begin at 12:00 noon, on April 22 at the Oaks Country Club. The greens fee is \$3.00 per person. A buffet dinner will be served in the Clubhouse at 7:00 p.m.

Golfers will register in the Main Lobby at the time of registration for the annual meeting. Buffet dinner tickets are \$7.50 and must be purchased in advance at the registration desk.

## INAUGURAL DINNER-DANCE

Beginning at 6:00 p.m. on April 21 with a social hour and reception in the Pompeian, French and Founders Rooms at The Mayo, the President's Inaugural Dinner-Dance will feature a diversified evening's entertainment. Charlie Barnet and his orchestra will furnish music for dancing; Doctor James Brown and his Greene County Medical Society Boys will present "Your Medical Hit Parade"; and The Topnotchers, a trio of musical comedians, will present a floorshow.

The dinner will be held in the Crystal Ballroom of The Mayo at 7:00 p.m. Dancing will begin at 9:00 p.m., just one block from The Mayo, in the Cimarron Ballroom.

## Distinguished Guest Speakers

**P. ROBB McDONALD, M.D.**

Philadelphia, Pennsylvania



Associate Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania. Attending Surgeon, Wills Eye Hospital, and Ophthalmologist In Chief, Lankenau Hospital of Philadelphia. Medical Degree, McGill

University Faculty of Medicine, Class of 1934. Diplomate, American Board of Ophthalmology. Fellow, American Academy of Ophthalmology and Otolaryngology. Member, American Ophthalmological Society. Consulting Ophthalmologist to the Surgeon-General, United States Air Force. *Sponsors: D. L. Edwards, M.D., Tulsa, and Charles G. Stuard, M.D., Tulsa.*

**GUNNAR GUNDERSEN, M.D.**

LaCrosse, Wisconsin

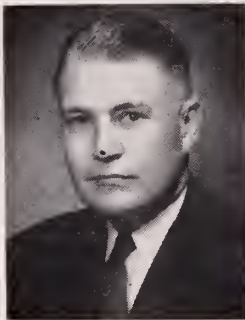


President, American Medical Association. Medical Degree, Columbia University College of Physicians and Surgeons, Class of 1920. Formerly President, Wisconsin State Medical Society, 1941-42. Elected to the House of Delegates of the American Medical Association

in 1937, and eleven years later was named to the AMA Board of Trustees. Formerly Chairman, Joint Commission On Accreditation Of Hospitals. Diplomate, American Board of Surgery. Fellow, American College of Surgeons. Attending Surgeon, LaCrosse Lutheran Hospital, and Director of Surgery, Gundersen Clinic of LaCrosse. *Sponsors: John E. McDonald, M.D., Tulsa, and Felix R. Park, M.D., Tulsa.*

**HARWELL WILSON, M.D.**

Memphis, Tennessee



Professor and Chief of the Division of Surgery, University of Tennessee School of Medicine. Medical Degree, Vanderbilt University School of Medicine, Class of 1932. Formerly member of the faculty of the University of Chicago

School of Medicine. Diplomate, American Board of Surgery. Fellow, American College of Surgeons. Member, American Surgical Association, Southern Surgical Association, Society of Vascular Surgery, South-eastern Surgical Congress, and Society of University Surgeons. Recipient of Distinguished Service Award from University of Chicago Alumni Association, 1952. *Sponsors: John G. Matt, M.D., Tulsa, and Charles E. Brighton, M.D., Tulsa.*

**E. PERRY McCULLAGH, M.D.**

Cleveland, Ohio



Chairman of the Department of Endocrinology and Metabolism, Cleveland Clinic. Medical Degree, University of Manitoba Faculty of Medicine, Class of 1924. President, American Endocrine Society. Diplomate, American Board of

Internal Medicine. Fellow, American College of Physicians. Member, American Diabetes Association, Central Society for Clinical Research, and the American Goiter Association. Author of numerous medical articles on diabetes, Greaves disease, and Aldosterone-producing tumors of the adrenal gland. *Sponsors: Vincel Sundgren, M.D., Tulsa and Henry A. Brocksmith, M.D., Tulsa.*



**ISADORE DYER, M.D.**

New Orleans, Louisiana

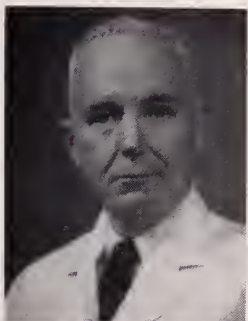


Professor of Obstetrics, Tulane University School of Medicine. Director of the Division of Obstetrics, Tulane Unit, Charity Hospital of New Orleans. Medical Degree, Tulane University School of Medicine, Class of 1933. Diplomate, American

Board of Obstetrics & Gynecology. Fellow, American College of Surgeons. President-Elect, Central Association of Obstetricians & Gynecologists. Member, American Association of Obstetricians & Gynecologists. Member, American College of Obstetricians & Gynecologists. Past-President, New Orleans Obstetrical & Gynecological Society. *Sponsors: Matthew B. Moore, M.D., Tulsa, and James T. Maddox, M.D., Tulsa.*

**CHARLES B. HUGGINS, M.D.**

Chicago, Illinois



Professor of Urology, University of Chicago School of Medicine. Director of the Ben May Laboratory for Cancer Research. Medical Degree, Harvard Medical School, Class of 1924. Recipient of honorary degrees from Acadia

University, Yale University, Washington University, Leeds University, Torino University, and Madrid University. Recipient of numerous awards and citations for his outstanding research in the field of cancer. Gold Medal, 1955, Association of American Medical Colleges; The Charles Mickle Fellowship, 1958, University of Toronto; Gold Medal, 1953, American Cancer Society; etc. Honorary Member, Royal Society of Medicine of London. *Sponsors: Maxwell A. Johnson, M.D., Tulsa, Henry S. Browne, M.D., Tulsa., and Berget H. Blocksom, M.D., Tulsa.*

**ORMAND C. JULIAN, M.D.**

Chicago, Illinois



Professor of Surgery, University of Illinois School of Medicine. Attending Surgeon, Presbyterian-St. Luke's Hospital of Chicago. Medical Degree, University of Chicago School of Medicine, Class of 1937. Ph.D. (Surgery), University

of Chicago, 1942. Diplomate, American Board of Surgery. Fellow, American Surgical Association. Fellow, American College of Surgeons. Member, Society of Clinical Research, Society for Vascular Surgery, Central Surgical Association, International Society of Angiology, and the Halstead Society. Consultant to the United States Veterans Administration. *Sponsors: N. C. Gaddis, M.D., Tulsa, and Joseph Fulcher, M.D., Tulsa.*

**MICHAEL L. MASON, M.D.**

Chicago, Illinois



Professor of Plastic and Reconstructive Surgery, Northwestern University School of Medicine. Associate Editor, Surgery, Gynecology & Obstetrics. Editorial Board, Journal of Bone & Joint Surgery. Medical Degree, Northwestern

University School of Medicine, Class of 1924. Ph.D., Northwestern Graduate School, 1931. Vice-President, American College of Surgeons. Diplomate, American Board of Surgery. Diplomate, Founders Group, American Board of Plastic Surgery. Member, American Surgical Association, Central Surgical Association, Association of Military Surgeons. Past-President, Western Surgical Association. *Sponsors: Worth M. Gross, M.D., Tulsa and John C. Dague, M.D., Tulsa.*

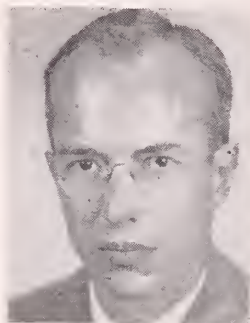


**E. D. BRONSON, L.L.B.**  
San Francisco, California



Widely known authority on legal medicine. Member of the law firm of Bronson, Bronson & McKinnon, San Francisco. Legal Education, University of California Law School,\* Class of 1922. Formerly President, American College of Trial Lawyers. Member, Bar Association of San Francisco, California State Bar Association (formerly Vice-President, 1953), American Bar Association, International Association of Insurance Counselors, and the American Judicature Society. Author of numerous articles and reviews in the field of medicolegal jurisprudence. *Sponsors: Marshall O. Hart, M.D., Tulsa, and Maurice P. Capehart, M.D., Tulsa.*

**CLARK H. MILLIKAN, M.D.**  
Rochester, Minnesota



Consultant in Neurology, Mayo Clinic. Associate Professor of Neurology, The Mayo Clinic Foundation, Graduate School of Medicine, University of Minnesota. Medical Degree, University of Kansas School of Medicine, Class of 1939. Formerly member of the faculty of State University of Iowa School of Medicine. Diplomate, American Board of Psychiatry & Neurology. Fellow, American College of Physicians. Fellow, American Academy of Neurology. Member, Association For Research in Nervous and Mental Diseases, American Neurological Association, and American Association of University Professors. *Sponsors: Robert L. Imler, Jr., M.D., Tulsa, and Tom R. Turner, M.D., Tulsa.*

**WILLIAM D. DAVIS, JR., M.D.**  
New Orleans, Louisiana



Assistant Professor of Medicine, Tulane University School of Medicine. Head of the Section on Gastroenterology of the Ochsner Clinic and Ochsner Foundation Hospital. Visiting Physician, Charity Hospital of New Orleans. Consultant to the United States Veterans Administration Hospital and the United States Public Health Service Hospital of New Orleans. Medical Degree, Tulane University School of Medicine, Class of 1943. Diplomate, American Board of Internal Medicine. Fellow, American College of Physicians. Member, Central Society for Clinical Research. Associate Member, American Gastroenterologic Association. *Sponsors: William J. O'Meilia, M.D., Tulsa, and William S. Jacobs, M.D., Tulsa.*

**ROBERT W. BUXTON, M.D.**  
Baltimore, Maryland



Professor of Surgery, University of Maryland School of Medicine. Medical Degree, University of Kansas School of Medicine, Class of 1936. Formerly member of the faculty of the University of Michigan School of Medicine, 1942-55. Diplomate, American Board of Surgery. Fellow, American College of Surgeons. Member, American Surgical Association, Central Surgical Association, Society of Vascular Surgery, the Frederick A. Collier Surgical Society, International Society of Angiology, International Cardiovascular Society, and the Southern Surgical Association. *Sponsors: Lester I. Nienhuis, M.D., Tulsa and Dale E. Newman, M.D., Tulsa.*

**WILLARD H. PARSONS, M.D.**

Vicksburg, Mississippi



Clinical Associate Professor of Surgery, University of Mississippi School of Medicine. Chief of Staff and Director of Surgery, Vicksburg Hospital and Clinic. Attending Surgeon, University Hospital. Senior Surgical Consultant, Kuhn

Memorial Hospital. Medical Degree, Jefferson Medical College, Class of 1920. Diplomate, American Board of Surgery. Formerly Chairman of the Board of Governors and now member of the Board of Regents, American College of Surgeons. Councilor, Southeastern Surgical Congress. Formerly Vice-President, Southern Surgical Association. Fellow, American Surgical Association. Past-President, Southern Society of Clinical Surgeons. *Sponsors: Ralph A. McGill, M.D., Tulsa, and William P. Fite, M.D., Muskogee.*

**NATHAN J. SMITH, M.D.**

Madison, Wisconsin



Professor and Chairman of the Department of Pediatrics, University of Wisconsin School of Medicine. Medical Degree, University of Wisconsin School of Medicine, Class of 1943. Formerly member of the faculty of Temple University

School of Medicine, 1951-53, and University of Southern California School of Medicine, 1954-57. Diplomate, American Board of Pediatrics. Member, American Academy of Pediatrics, Pediatric Research Society, Society of Experimental Medicine & Biology, International Society of Hematology. Formerly Fulbright Scholar at the University of Paris, Paris, France, 1950. *Sponsors: G. R. Russell, M.D., Tulsa, and Walter F. Sethney, M.D., Tulsa.*

## ANNUAL MEETING TELEPHONE MESSAGE CENTER

While you are attending the Annual Meeting, your  
emergency calls may be referred to

### Gibson 7-8032

Located on the 16th floor of the Mayo Hotel

Courtesy of

### Tulsa Medical Service Association

447

# MONDAY, April 20, 1959

## MORNING SESSION: GENERAL—Crystal Ballroom

**E. C. Mohler, M.D., Ponca City, Presiding**

- 9:00 a.m. THE ACUTE SURGICAL ABDOMEN  
Harwell Wilson, M.D., *Memphis, Tennessee*
- 9:40 a.m. MAMMARY CANCER  
Charles B. Huggins, M.D., *Chicago, Illinois*
- 10:20 a.m. CURRENT TRENDS IN THE FIELD OF THYROID DISEASE  
E. Perry McCullagh, M.D., *Cleveland, Ohio*
- 11:00 a.m. CLINICAL AND THERAPEUTIC ASPECTS OF CHRONIC OBSTRUCTION OF THE BRANCHES OF THE AORTIC ARCH  
Ormand C. Julian, M.D., *Chicago, Illinois*
- 11:30 a.m. DIFFERENTIAL DIAGNOSIS OF VARIOUS TYPES OF STROKES  
Clark H. Millikan, M.D., *Rochester, Minnesota*

## 12:30 p.m.: ROUNDTABLE LUNCHEON—Pompeian Room

**Walter E. Brown, M.D., Tulsa, Presiding**

Guest Participants: Harwell Wilson, M.D., E. Perry McCullagh, M.D., Clark H. Millikan, M.D., Ormand C. Julian, M.D., Charles B. Huggins, M.D.

## AFTERNOON SESSION: SECTION ONE—Crystal Ballroom

**N. C. Gaddis, M.D., Tulsa, Presiding**

- 2:00 p.m. TOTAL ADRENALECTOMY IN THE TREATMENT OF ADVANCED CARCINOMATOSIS  
Willard H. Parsons, M.D., *Vicksburg, Mississippi*
- 2:20 p.m. SYMPOSIUM ON CURRENT MANAGEMENT OF METASTATIC CARCINOMA  
Charles B. Huggins, M.D., *Chicago, Illinois*  
Harwell Wilson, M.D., *Memphis, Tennessee*  
E. Perry McCullagh, M.D., *Cleveland, Ohio*  
Willard H. Parsons, M.D., *Vicksburg, Mississippi*  
Lucien M. Pascucci, M.D., *Tulsa, Oklahoma*
- 3:30 p.m. EXPERIENCES IN THE SURGICAL TREATMENT OF TUMORS OF THE LIVER  
Harwell Wilson, M.D., *Memphis, Tennessee*
- 4:10 p.m. CANCER OF THE PROSTATE  
Charles B. Huggins, M.D., *Chicago, Illinois*

## AFTERNOON SESSION: SECTION TWO—Emerald Room

**James W. Kelley, M.D., Tulsa, Presiding**

- 2:00 p.m. DUPUYTREN'S CONTRACTURE  
Michael L. Mason, M.D., *Chicago, Illinois*
- 2:30 p.m. THE RH PROBLEM—1959  
Nathan J. Smith, M.D., *Madison, Wisconsin*
- 3:10 p.m. SOME UNUSUAL INDICATIONS FOR CESAREAN SECTION  
Isadore Dyer, M.D., *New Orleans, Louisiana*
- 3:50 p.m. TEN YEARS EXPERIENCE WITH CESAREAN SECTION IN 50-BED GENERAL HOSPITAL  
B. C. Chatham, M.D., *Chickasha, Oklahoma*
- 4:10 p.m. SERIOUS COMPLICATIONS OF INTRAOCULAR SURGERY  
P. Robb McDonald, M.D., *Philadelphia, Pennsylvania*



# TUESDAY, April 21, 1959

## MORNING SESSION: GENERAL—Crystal Ballroom

**Edward L. Moore, M.D., Tulsa, Presiding**

- 8:40 a.m. WHAT ARE WE DOING WITH OUR STROKE PATIENTS?  
Herbert Kent, M.D., *Oklahoma City, Oklahoma*
- 9:00 a.m. CURRENT CONCEPTS IN THE TREATMENT OF STROKES  
Clark H. Millikan, M.D., *Rochester, Minnesota*
- 9:40 a.m. LOOK AND SEE-OPHTHALMOLOGICAL ASPECTS OF SYSTEMIC DISEASES  
P. Robb McDonald, M.D., *Philadelphia, Pennsylvania*
- 10:10 a.m. REPAIR OF HAND TENDONS  
Michael L. Mason, M.D., *Chicago, Illinois*
- 10:50 a.m. INDICATIONS FOR HYSTERECTOMY—WHEN AND WHY  
Isadore Dyer, M.D., *New Orleans, Louisiana*
- 11:30 a.m. THE TREATMENT OF MALIGNANT SALIVARY GLAND TUMORS  
Robert W. Buxton, M.D., *Baltimore, Maryland*

## 12:30 p.m.: ROUNDTABLE LUNCHEON—Pompeian Room

**William Orlando Smith, M.D., Tulsa, Presiding**

Guest Participants: Clark H. Millikan, M.D., Isadore Dyer, M.D., Robert W. Buxton, M.D., Michael L. Mason, M.D., P. Robb McDonald, M.D.

## AFTERNOON SESSION: SECTION ONE—Crystal Ballroom

**Byron W. Steele, Jr., M.D., Tulsa, Presiding**

- 2:00 p.m. SYMPOSIUM OF THE CURRENT MANAGEMENT OF RECURRING ABDOMINAL PAIN OF OBSCURE ORIGIN  
William D. Davis, Jr., M.D., *New Orleans, Louisiana*  
Robert W. Buxton, M.D., *Baltimore, Maryland*  
Isadore Dyer, M.D., *New Orleans, Louisiana*  
Nathan J. Smith, M.D., *Madison, Wisconsin*

## AFTERNOON SESSION: SECTION TWO—Emerald Room

**Rayburne W. Goen, M.D., Tulsa, Presiding**

- 2:00 p.m. VASCULAR COMPLICATIONS OF DIABETES MELLITUS  
E. Perry McCullagh, M.D., *Cleveland, Ohio*
- 2:40 p.m. INDICATIONS FOR OPEN HEART REPAIR OF CONGENITAL AND ACQUIRED CARDIAC LESIONS IN ADULTS  
Ormand C. Julian, M.D., *Chicago, Illinois*
- 3:10 p.m. AORTIC ANEURYSMS  
John M. Carey, M.D., and Allen E. Greer, M.D., *Oklahoma City, Okla.*
- 3:25 p.m. MANAGEMENT OF EMERGENCY COMPLICATIONS IN THE OPERATING AND RECOVERY ROOMS  
J. Moore Campbell, M.D., and Leo J. Starry, M.D., *Oklahoma City, Okla.*
- 3:40 p.m. BLOOD PLATELETS AND THROMBOCYTOPENIA IN PEDIATRIC PATIENTS  
Nathan J. Smith, M.D., *Madison Wisconsin*
- 4:20 p.m. REVERSIBLE LIVER DISEASE  
William D. Davis, Jr., M.D., *New Orleans, Louisiana*

## WEDNESDAY, April 22, 1959

### MORNING SESSION: GENERAL—Crystal Ballroom

Alfred T. Baker, M.D., Durant, Presiding

- 8:40 a.m. HYPERCORTISONISM OCCURRING IN PATIENTS WITHOUT RHEUMATOID ARTHRITIS AND SYSTEMIC LUPUS ERYTHEMATOSUS  
Mary L. Duffy, M.D., John A. Blaschke, M.D. and J. N. Owens, Jr., M.D., *Oklahoma City, Oklahoma*
- 9:00 a.m. A PRACTICAL APPROACH TO THE HAZARDS OF MALPRACTICE  
E. D. Bronson, L.L.B., *San Francisco, California*
- 9:40 a.m. GASTROINTESTINAL TRACT TUMORS OF SMOOTH MUSCLE ORIGIN  
Robert W. Buxton, M.D., *Baltimore, Maryland*
- 10:20 a.m. OUR PRESENT OBLIGATION IN CARCINOMA OF THE STOMACH  
William D. Davis, Jr., M.D., *New Orleans, Louisiana*
- 11:00 a.m. TREATMENT OF INTERTROCHANTERIC FRACTURES BY WELL LEG TRACTION  
Jack L. Richardson, M.D., *Tulsa, Oklahoma*

## ATTENTION

### COUNTY MEDICAL SOCIETIES

If your society contemplates introducing a resolution at the Annual Meeting in Tulsa, April 19, it would be appreciated if such resolution could be made available to the executive office at the earliest possible time.

Clinton Gallaher, M.D.  
Speaker, House of Delegates

# Medical Motion Pictures

Daily showings of new sound and color medical motion pictures have been scheduled for the 53rd Annual Meeting of the Oklahoma State Medical Association each morning in the Metropolitan Room of The Mayo.

The schedule is as follows:

## MONDAY, APRIL 20, 1959

- 9:00 a.m. "DIAGNOSIS AND MANAGEMENT OF ARTHRITIDES."
- 9:32 a.m. "ANEURYSMS OF THE ABDOMINAL AORTA."
- 9:85 a.m. "COLON SURGERY—A PANEL DISCUSSION."
- 10:41 a.m. "THE STORY OF RENAL CALCULI."
- 11:14 a.m. "OPEN METHOD OF BURN THERAPY."
- 11:34 a.m. "CATARACT EXTRACTION."

## TUESDAY, APRIL 21, 1959

- 9:00 a.m. "THE MEDICAL WITNESS."
- 9:35 a.m. "CHOLECYSTECTOMY."
- 10:13 a.m. "MICROGNATHIA AND ITS CORRECTION."
- 10:27 a.m. "CARDIAC ARREST."
- 10:55 a.m. "DISORDERS OF THE HEART BEAT."
- 11:16 a.m. "CARCINOMA OF THE BREAST."

## WEDNESDAY, APRIL 22, 1959

- 9:00 a.m. "RADIOISOTOPES: THEIR APPLICATION TO HUMANS AS TRACER STUDIES AND FOR THERAPEUTIC USE."
- 9:26 a.m. "COMPLICATED APPENDICITIS."
- 9:54 a.m. "PAROIDECTOMY."
- 10:16 a.m. "UTERINE CANCER."
- 10:38 a.m. "FRACTURES OF THE KNEE."
- 11:07 a.m. "PERIDURAL AND CAUDAL ANESTHESIA."



## The Scientific . . .

H. F. FLANIGIN, JR., M.D.

Neurosurgical Section, Oklahoma State Department of Mental Health

Tulsa

Booth 1

*"Investigation and Surgical Treatment of Epilepsy in Oklahoma State Mental Hospitals"*

A demonstration of EEG machine with abnormal recordings, photographic pictures of epileptogenic lesions of brain with areas resected and review of statistical results.

GEORGE L. WINN, M.D. and HERBERT KENT, M.D.

Oklahoma Allergy Clinic

Oklahoma City

Booth 2

*"Physical Medicine in Asthma and Emphysema"*

A demonstration of pulmonary function testing by means of electronic apparatus, and breathing exercises for patients with asthma and emphysema.

OKLAHOMA STATE HEART ASSOCIATION

Oklahoma City

Booth 3

*"Farmers With Heart Disease"*

A review of energy requirements for farm work with suggestions for rehabilitation of farmers. Emphasis upon medical and sociological aspects of farmers with heart disease.

W. PAT FITE, JR., M.D.

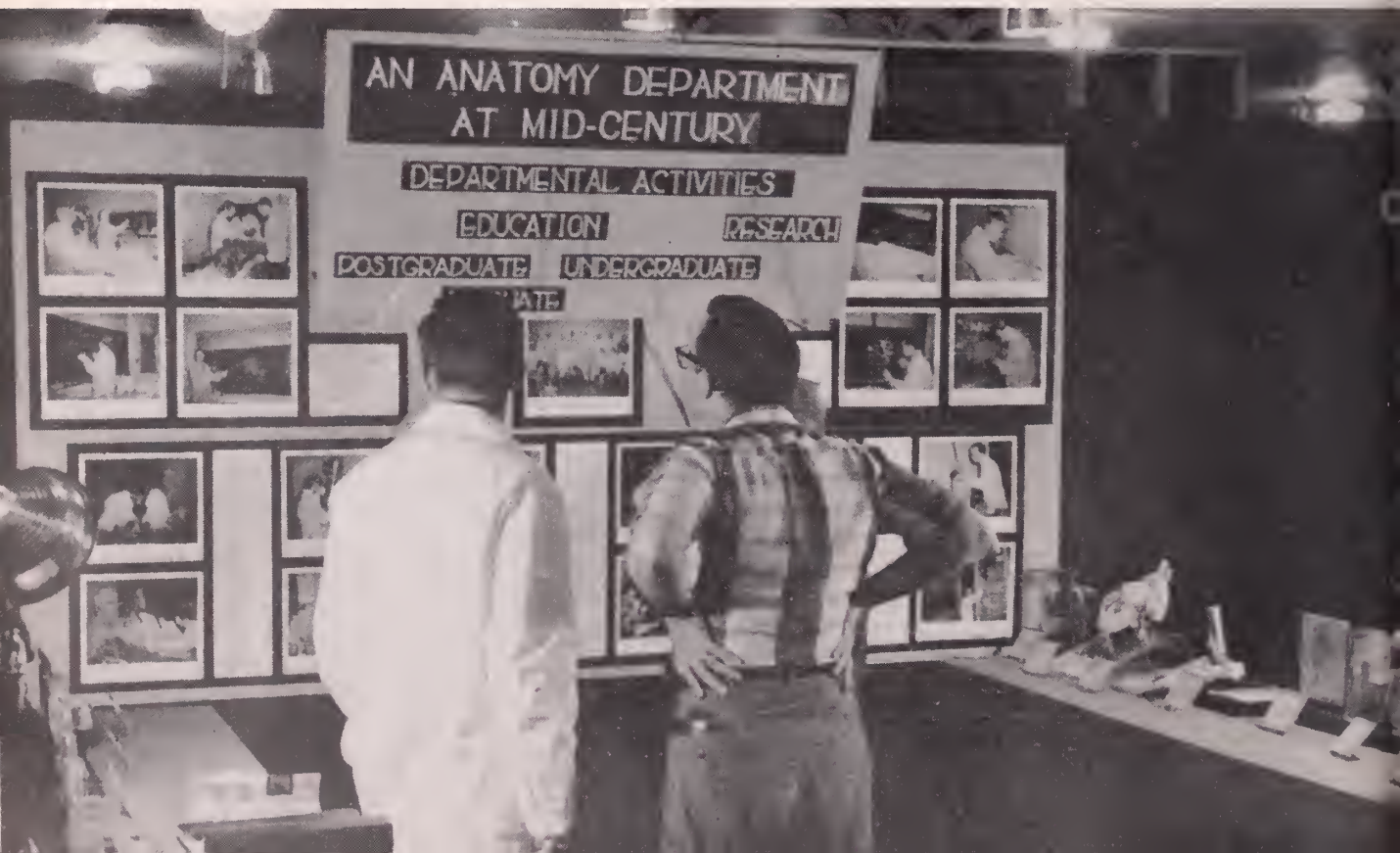
Department of Plastic and Maxillofacial Surgery, Lakeland Medical Center

Muskogee

Booth 4

*"Hand Injuries"*

Major and minor hand injuries are depicted by color photographs. Included are methods of treatment, operative procedures and follow-ups.



## . . . and Educational Exhibits

GEORGE H. KIMBALL, M.D.

Oklahoma City

Booth 5

### *"Plastic and Reconstructive Surgery"*

Photographs and drawings of selected cases illustrating the effective use of plastic and reconstructive surgery in both male and female patients.

OKLAHOMA DIVISION, AMERICAN CANCER SOCIETY

Oklahoma City

Booth 6

### *"A Cancer Service Program to Save Lives"*

The services of the American Cancer Society to patients and physicians are explained and defined in this attractive exhibit.

ASSOCIATION OF AMERICAN PHYSICIANS AND SURGEONS  
Chicago, Illinois

Booth 7

### *"The Preservation of Quality Medical Care in America"*

This exhibit includes useful literature regarding the preservation of quality of medical care and medical freedom for physicians and their patients as well as the maintenance of freedom for all Americans. A member of the AAPS will be present to discuss the material in the exhibit.

TULSA COUNTY RED CROSS BLOOD CENTER

Tulsa

Booth 8

### *"A Blood Program for Tulsa County"*

The activities of the Tulsa County Red Cross Blood Center, including its widespread fractionation program, are described in this attractive exhibit.

W. T. McCOLLUM, M.D., JOHN R. DANSTROM, M.D. and ALLEN GREER, M.D.

Mercy Hospital Heart Center

Oklahoma City

Booth 9

### *"A Diagnostic Cardiovascular Laboratory"*

A model diagnostic cardiovascular laboratory is described in photographs and charts with special reference to the galvanometer system, cine-radiology, biplane Schonader x-rays, and dye dilution curves.

OKLAHOMA POISON INFORMATION CENTER

Oklahoma City

Booth 10

### *"Control of Accidental Poisoning"*

Charts and diagrams show the incidence of accidental poisoning and the development of measures to prevent accidental poisoning.

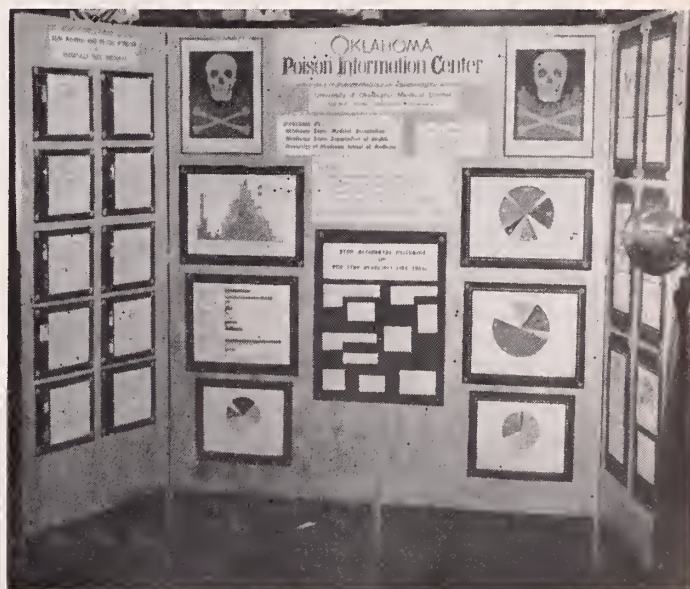
THE JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION

Oklahoma City

Booth 11

### *"Activities of the Journal of the Oklahoma State Medical Association"*

A review of the editorial policies of *The Journal of the Oklahoma State Medical Association*.



DEPARTMENTS OF SURGERY AND PEDIATRICS, UNIVERSITY OF OKLAHOMA MEDICAL CENTER (Drs. Gilbert S. Campbell, Glen Caylor, William Richardson, Rainey Williams and David D. Snyder.)

Oklahoma City

Booth 12

### *"Direct Vision Intracardiac Surgery"*

A presentation of clinical cases in direct vision intracardiac surgery, including cardiac catheterization data, x-rays, diagrams of intracardiac defects, and diagrams of surgical correction of such defects, as well as perfusion data and demonstration of heart-lung apparatus.



# The Social Calendar . . .

## President's Inaugural Dinner - Dance

TUESDAY, APRIL 21, 1959

- 6:00 p.m. SOCIAL HOUR AND RECEPTION. Pompeian, French and Founders Rooms, The Mayo.
- 7:00 p.m. DINNER AND INAUGURAL CEREMONIES. Crystal Ballroom, The Mayo. Program: Musical entertainment by Dr. James Brown and His Greene County Medical Society Boys of Springfield, Missouri.
- 9:00 p.m. DANCING to the Music of Charlie Barnet and His Orchestra. Cimarron Ballroom, 4th and Denver Streets. Floorshow entertainment featuring The Topnotchers.



**CHARLIE BARNET**

The exciting modern jazz rhythms of Charlie Barnet made him an overnight sensation in 1939. Today, two decades later, he is one of America's most popular (and handsome) maestros at leading ballrooms over the United States. His Mercury and Decca recordings are top sellers, and some of his jazz records are recognized classics. Barnet has been featured in many 20th Century-Fox movies and is frequently seen on nationwide television programs. His modern jazz and latin rhythms are interspersed with sweeter swing danceable tempos and dozens of ever-popular "oldies." Members of the Oklahoma State Medical Association will dance to Charlie Barnet and His Orchestra at the Cimarron Ballroom, just one block from The Mayo, from 9:00 p.m. to 1:00 a.m.





## . . . Time to Relax



**YOUR MEDICAL HIT PARADE**

A special feature of the President's Inaugural Dinner Dance will be the appearance of Doctor James Brown and His Greene County Medical Society Boys of Springfield, Missouri, and their "Your Medical Hit Parade" presentation. This troupe of six practicing physicians has attracted nationwide attention with their hilarious medical parodies of popular song hits. Doctor Brown and his associates have appeared at dozens of medical meetings in the United States, including the American Medical Association.

### **THE TOPNOTCHERS**

As an added extra attraction, the President's Inaugural Dinner Dance will feature a floorshow by The Topnotchers, a trio of zany musical comedians who have kept audiences in stitches at major night clubs across the nation. These Decca recording artists and performers on many network TV variety shows will appear at the Cimarron Ballroom to entertain at the intermission of the Charlie Barnet dance. The Topnotchers have recently set attendance records at The Last Frontier, Las Vegas, where audiences were delighted with their fresh comedy styles and sound musicianship.

### **TICKET INFORMATION**

Tickets to the President's Inaugural Dinner Dance may be purchased in advance by writing: Tulsa County Medical Society, B9 Medical Arts Building, Tulsa 19. Tickets are \$7.50 which includes the social hour, dinner, inaugural ceremonies, entertainment, floor show and dance. Make checks payable to "Oklahoma State Medical Association."

Attendance at the Dinner-Dance is limited to the capacity of the Crystal Ballroom. Tickets remaining after mail orders have been filled will be on sale at the Registration Desk.



## ANNUAL GOLF TOURNAMENT

The Annual Golf Tournament and Dinner of the Oklahoma State Medical Association will be held on Wednesday, April 22, 1959, at the beautiful Oaks Country Club of Tulsa.

Golfing will begin at 12:00 Noon. The greens fee is \$3.00 per person. A delicious buffet dinner will be served in the Clubhouse at 7:00 p.m. Many attractive and valuable merchandise prizes, contributed by Tulsa merchants, will be awarded to the winners.

Oaks Country Club offers a fine golf course that will delight physician-golfers. Doctors will bring their own clubs, and locker room facilities will be furnished.

Tickets for the buffet dinner and social hour are \$7.50 per person. Tickets should be purchased at the General Registration Desk at the time of registering for the meeting.

## TENNIS TOURNAMENT

Excellent facilities will be available for those who wish to compete in the tennis tournament on Wednesday, April 22. Five rubico courts will be reserved for physicians at the Tulsa Tennis Club, 2801 South Columbia Place. Locker and clubroom facilities may be used, but contestants must furnish their own equipment.

Physicians wishing to participate are asked to write Dr. Walter E. Brown, Glass-Nelson Clinic, 2020 South Xanthus, Tulsa.



# Forty-three Technical Exhibitors Scheduled

The Technical Exhibit at the 53rd Annual Meeting of the Oklahoma State Medical Association will feature displays by the following leading firms:

Booth No.	Exhibitor		
1	Mid-Continent Surgical Supply Company and Merkel X-Ray Company.	19	Abbott Laboratories.
2	Geigy Pharmaceuticals.	20	Eli Lilly & Company.
3	George A. Breon & Company.	21	Carnation Company.
4	G. D. Searle & Company.	22	J. B. Roerig Company.
5	Merrill Lynch, Pierce, Fenner & Smith, Inc.	23	Endo Laboratories.
6	Coca-Cola Bottling Company.	24	Melton-Myers Surgical Supply Company and The Melton Company.
7	Mid-West Surgical Supply Company.	25	Roche Laboratories.
8	U. S. Vitamin Corporation.	26	The S. E. Massengill Company.
9	Schering Corporation.	27	Mead Johnson & Company.
10	E. R. Squibb & Sons, Inc.	28	Rhinopto Company.
11	Greb X-Ray Company.	29	Parke, Davis & Company.
12	Ortho Products Company.	30	A. S. Aloe Company.
13	Sandoz Pharmaceuticals.	31	Wyeth Laboratories.
14	General Electric X-Ray Company.	32	Medco Products Company.
15	St. Paul-Mercury Insurance Company.	33	Blue Cross-Blue Shield Plans of Oklahoma.
16	Kay Pharmacal Company.	34	J. D. Young Company.
17	Lederle Laboratories.	35	Oklahoma Physicians Supply Company.
18	W. B. Saunders Company.	36	Ciba Pharmaceutical Products.
		37	Sealy Southwest, Inc.
		38	R. J. Reynolds Tobacco Company.
		39	A. H. Robins Company, Inc.
		40	William S. Merrell Company.
		41	R. P. Kincheloe X-Ray Company.
		42	Knoll Pharmaceuticals.
		43	Merck, Sharp & Dohme, Inc.

PLAN TO ATTEND 108th ANNUAL MEETING OF THE

**AMERICAN MEDICAL ASSOCIATION**

**June 8-12, 1959, Atlantic City, New Jersey**

*Write Convention Services, American Medical Association, 535 N. Dearborn St., Chicago 10, Illinois for advance hotel and meeting registration information.*



## Oklahoma State Medical Association 1959 DELEGATES AND ALTERNATES

Society	Delegates	Alternates
ATOKA	NO ENTITLEMENT	
BRYAN	LeRoy Engles, M.D., Durant	B. B. Coker, M.D., Durant
COAL	NO ENTITLEMENT	
BECKHAM	W. T. Andreskowski, M.D., Elk City	Alexander Shadid, M.D., Elk City
BLAINE	NOT REPORTED	
CADDO	NOT REPORTED	
CANADIAN	NOT REPORTED	
CARTER	NOT REPORTED	
LOVE	NO ENTITLEMENT	
MARSHALL	NO ENTITLEMENT	
CHEROKEE	NOT REPORTED	
ADAIR	NO ENTITLEMENT	
CHOCTAW	John D. Jennings, M.D., Hugo	Henry D. Wolfe, M.D., Hugo
PUSHMATAHA	NO ENTITLEMENT	
CLEVELAND	NOT REPORTED	
McCLAIN	NOT REPORTED	
COMANCHE	William P. Jolly, M.D., Lawton Donald W. Angus, M.D., Lawton	Lowell F. Thornton, M.D., Lawton Fred Fox, M.D., Lawton
COTTON	NO ENTITLEMENT	
CRAIG	NOT REPORTED	
OTTAWA	NOT REPORTED	
CREEK	NOT REPORTED	
CUSTER	NOT REPORTED	
EAST CENTRAL		
MUSKOGEE	William Weaver, M.D., Muskogee Ed H. Fite, M.D., Muskogee Shade Neeley, M.D., Muskogee	Joe James, M.D., Muskogee Halsell Fite, M.D., Muskogee Eugene Henry, M.D., Muskogee
WAGONER	NO ENTITLEMENT	
SEQUOYAH	NO ENTITLEMENT	
McINTOSH	NO ENTITLEMENT	
GARFIELD	Georget T. Ross, M.D., Enid John W. Williams, M.D., Enid Avery B. Wight, M.D., Enid	Paul H. Rempel, M.D., Enid Wilson J. Buvinger, M.D., Enid H. L. Steffen, M.D., Enid
KINGFISHER	Arthur W. Buswell, M.D., Hennessey	Frank C. Lattimore, M.D., Kingfisher
GARVIN	NOT REPORTED	
GRADY	L. E. Woods, M.D., Chickasha Seth D. Revere, M.D., Chickasha	J. J. Swan, M.D., Chickasha R. D. Shelby, M.D., Chickasha
GRANT	NO ENTITLEMENT	
GREER	Fred W. Sellers, M.D., Mangum	Dwight D. Pierson, M.D., Mangum
HUGHES	H. V. Schaff, M.D., Holdenville	C. M. Bloss, M.D., Holdenville
SEMINOLE	D. D. Mosher, M.D., Seminole	Allen Bunch, M.D., Seminole
JACKSON	NOT REPORTED	
JEFFERSON	NOT REPORTED	
KAY	L. H. Becker, M.D., Blackwell J. M. Busk, M.D., Ponca City Charles Martin, M.D., Perry	R. F. Morgan, M.D., Blackwell Harold Jones, M.D., Ponca City Arthur Brown, M.D., Perry
NOBLE		
KIOWA	NOT REPORTED	
WASHITA	NOT REPORTED	
LeFLORE	W. W. Cotton, M.D., Poteau	C. S. Cunningham, M.D., Poteau
HASKELL	NO ENTITLEMENT	
LINCOLN	NOT REPORTED	
LOGAN	NOT REPORTED	
McCURTAIN	NOT REPORTED	
MURRAY	NOT REPORTED	

(Continued on Page 203)

## Other Groups To Meet

### AMERICAN COLLEGE OF SURGEONS

The Oklahoma Chapter of the American College of Surgeons will hold a dinner meeting on Monday, April 20, 1959, at 6:30 p.m. at the Tulsa Club. Wives are invited. The guest speaker will be Dr. Willard H. Parsons of Vicksburg, Mississippi, member of the Board of Regents of the American College of Surgeons. Tickets will be on sale at the General Registration Desk in the Main Lobby and should be purchased at time of registration for the annual meeting. Each member of the College will receive an advance reservation form by mail and is urged to make reservations for this event. For information contact Doctor Ralph A. McGill, 210 Utica Square Medical Center, Tulsa.

### TULSA OB-GYN SOCIETY

The Tulsa Obstetrical & Gynecological Society has scheduled a special convention meeting on Sunday, April 19, 1959, at 6:30 p.m. in the Four Seasons Room of Western Village Motel. Doctor Isadore Dyer, Professor of Obstetrics, Tulane University School of Medicine, New Orleans, Louisiana, will be the principal guest speaker.

### OKLAHOMA UROLOGICAL SOCIETY

The Oklahoma Urological Society will hold a one-day seminar on Saturday, April 18, 1959, in the Metropolitan Room of The Mayo. Doctor Charles B. Huggins, Professor of Urology at the University of Chicago, Chicago, Illinois, will be the principal guest speaker. Registration opens at 8:30 a.m.

### OKLAHOMA RADIOLOGICAL SOCIETY

The Oklahoma Radiological Society will meet on Sunday, April 19, 1959, in the Emerald Room of The Mayo. The time will be announced later. Doctor Don C. Weir, Associate Professor of Radiology, St. Louis University School of Medicine, St. Louis, Missouri, will be the guest speaker.

### OKLAHOMA ORTHOPEDIC SOCIETY

The Oklahoma Orthopedic Society will hold its Spring meeting on Sunday, April 19, 1959, at 2:00 p.m. at St. John's Hospital of Tulsa. Doctor Michael L. Mason, Professor of Plastic Surgery at Northwestern University School of Medicine, Chicago, Illinois, will be the principal guest speaker.

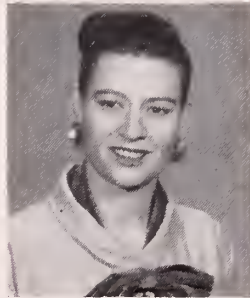
### OKLAHOMA MEDICAL ASSISTANTS SOCIETY

The Oklahoma Medical Assistants Society will meet April 17-19, 1959, at Hotel Tulsa. Guest speakers will include Doctor Gunnar Gundersen of LaCrosse, Wisconsin, President of the American Medical Association; Doctor Leonard P. Eliel, Director of Research, Oklahoma Medical Research Foundation, Oklahoma City; and Mr. James E. Bryan, Staff Consultant to the Blue Cross-Blue Shield Commission, Chicago, Illinois. A delightful program of entertainment has also been arranged, featuring the Annual Dinner Dance on Saturday, April 18th. Bob Alsbaugh and His Orchestra will provide the music.

## For the Ladies . . .



Mrs. Iron Hawthorne  
Nelson  
Tulsa  
State President



Mrs. Clifford M. Bassett  
Cushing  
President-Elect



Mrs. E. Arthur Underwood  
Vancouver, Washington  
President  
Woman's Auxiliary  
American Medical Association



Mrs. George W. Owen  
Jackson, Mississippi  
President  
Woman's Auxiliary  
Southern Medical Association

### WOMAN'S AUXILIARY

to the

OKLAHOMA STATE MEDICAL ASSOCIATION  
THE MAYO TULSA, OKLAHOMA

SUNDAY, APRIL 19, 1959

All members and visiting physicians' wives  
are welcome to all activities.

1:00-5:00 p.m.—REGISTRATION AND INFORMATION—Founders' Room, Mezzanine, The Mayo

2:30-4:30 p.m.—TEA, Terrace Room, The Mayo  
Hostess: Tulsa County Auxiliary  
Honoring Mrs. E. Arthur Underwood, President  
Auxiliary to the American Medical Association;  
Mrs. George W. Owen, President, Southern Medical  
Association Auxiliary; past presidents, state  
officers, and the wives of guest speakers.

5:30 p.m.—EXECUTIVE BOARD MEETING

Mrs. Iron H. Nelson, presiding  
Metropolitan Room, Mezzanine;  
Dinner, Terrace Room

MONDAY, APRIL 20, 1959

THEME: Safeguard Today's Health For Tomorrow

8:30 a.m.—PAST PRESIDENTS' BREAKFAST, Studio  
Room, The Mayo. Hostess, Mrs. Frank L. Flack.

9:00 a.m.—REGISTRATION, Founders' Room, Mezzanine, The Mayo.  
Coffee and rolls will be served.

9:45 a.m.—GENERAL MEETING, Emerald Room,  
The Mayo.

CALL TO ORDER: Mrs. Iron H. Nelson.

INVOCATION: Mrs. Alfred T. Baker, Durant.

PLEDGE: Mrs. Clifford M. Bassett—

"I pledge my loyalty and devotion to the Woman's Auxiliary to the American Medical Association. I will support its activities, protect its reputation and ever sustain its high ideals."

WELCOME: Mrs. Logan Spann, President, Tulsa County Medical Auxiliary.

GREETINGS: Doctor E. C. Mohler, President, Oklahoma State Medical Association.

INTRODUCTIONS: Mrs. E. Arthur Underwood, President, Woman's Auxiliary, American Medical Association.

Mrs. George W. Owen, President, Southern Medical Auxiliary.

ROLL CALL BY COUNTIES.

READING AND ADOPTION OF THE MINUTES.

TREASURER'S REPORT: Mrs. Virgil Ray Forster.

REPORT OF THE CREDENTIALS COMMITTEE: Mrs. W. A. Huber.

BUSINESS:

Bylaws—Mrs. Clinton F. Gallaher,  
Finance—Mrs. J. A. Cunningham,  
Nominating—Mrs. C. M. Bassett,  
Convention—Mrs. G. H. Miller.

MEMORIAL SERVICE: Mrs. James Stevenson.

1:00 p.m.—LUNCHEON AND FASHION SHOW.  
Beautiful Ramada Inn, 51st and Yale; Fashions  
by Nan Pendleton.



# ... A Full Schedule

## TUESDAY, APRIL 21, 1959

9:00 a.m.—REGISTRATION, Founders' Room, Mezzanine, The Mayo.  
Coffee and Rolls will be served.

9:45 a.m.—GENERAL MEETING, Emerald Room, Mezzanine, The Mayo.

CALL TO ORDER: Mrs. Iron H. Nelson.

INVOCATION: Mrs. E. C. Mohler.

PLEDGE: Mrs. Wm. Patton Fite, Sr.

GREETINGS: Dr. Alfred T. Baker, President-Elect, Oklahoma State Medical Association.

INTRODUCTIONS: Mrs. E. Arthur Underwood, President, Woman's Auxiliary, American Medical Association.

Mrs. George W. Owen, President, Auxiliary, Southern Medical Association.

ROLL CALL BY COUNTIES: Mrs. Virgil Ray Forester.

REPORT: Credentials Committee—Mrs. Huber.

REPORTS: County Presidents  
State Committee Chairmen

OLD BUSINESS.

NEW BUSINESS.

Budget: Mrs. John Cunningham  
Election of Officers

INSTALLATION OF OFFICERS.

ANNOUNCEMENTS: Mrs. George H. Miller.

ADJOURNMENT.

1:00 p.m.—LUNCHEON, Founders' Room, Mezzanine, The Mayo.

Post Convention School of Instruction, Mrs. C. M. Bassett, President-elect.

PRESIDENT'S INAUGURAL DINNER-DANCE, OKLAHOMA STATE MEDICAL ASSOCIATION.

6:00 p.m.—Social Hour.

7:00 p.m.—Dinner, Crystal Ballroom, The Mayo.

Program—"Your Medical Hit Parade"

Dr. James Brown and the Greene County Medical Society Boys, Springfield, Missouri.

9:00 p.m.—DANCE.

Cimarron Ballroom, 221 W. 4th.

Charlie Barnet and his Orchestra.

## CONVENTION COMMITTEES

Mrs. George H. Miller, Chairman

Registration Mrs. John Blankenship

Credentials Mrs. Walter Huber

Courtesy Mrs. Vance Lucas

Hospitality Mrs. Harlan Thomas

Hobby Show Mrs. Wm. R. R. Loney

Tea Mrs. Robert Anderson

Luncheon Mrs. Samuel R. Turner

Fashion Show Mrs. Robt. W. Spencer

Past Presidents Mrs. Frank L. Flack

Publicity Mrs. Marshall O. Hart

Mrs. L. E. Thompson, Jr.

Tickets Mrs. C. G. Stuard

## HOSTESS COUNTIES

Tulsa, Kay-Noble, Washington-Nowata, Garfield-Kingfisher, and Okmulgee.

# Oklahoma State Medical Assistants Society

## FRIDAY, APRIL 17, 1959

Reception for out-of-town

guests\_\_\_\_\_Hotel Tulsa

## SATURDAY, APRIL 18—Morning Session

Registration

Call to Order\_\_\_\_\_Marge Petty, Ada,  
President, O.S.M.A.S.

Invocation\_\_\_\_\_J. C. Bunn, Th.D.,  
Sequoyah Hills Baptist Church, Tulsa

Official Welcome\_\_\_\_\_Mr. James Maxwell,  
Mayor, City of Tulsa

Response\_\_\_\_\_Lucille Swaringer,  
Bartlesville, President, National  
Association Medical Assistants

Speaker\_\_\_\_\_Mr. James Bryan,  
Consultant, Blue Shield Plan  
Commission

Magic Suitcase\_\_\_\_\_Carol Childress  
(Sponsored by Oklahoma Petroleum Council)  
Luncheon

## Afternoon Session

Roll Call by Counties\_\_\_\_\_Presentation of  
Nomination Committee Slate

Speaker\_\_\_\_\_Leonard Eliel, M.D.,  
Medical Director, Oklahoma  
Medical Research Foundation

Announcement of Election Results

## Evening Session

Dinner

Welcome\_\_\_\_\_Katie Brown, Tulsa,  
Convention Chairman

Response

Introductions

Cartoonist—Rex Morgan, M.D.\_\_\_\_\_  
\_\_\_\_\_Mr. Marvin Bradley

Dance \_\_\_\_\_Bob Alspaugh, Tulsa

## SUNDAY, APRIL 19—Morning Session

Invocation

Address\_\_\_\_\_Gunnar Gunderson, M.D.,  
President, American Medical Association

“The Robe”\_\_\_\_\_Leo J. Starry, M.D.,  
Oklahoma City

Seminar\_\_\_\_\_David Steen  
University of Oklahoma

Luncheon\_\_\_\_\_Speaker — Secret!!  
(Sponsored by Druggists of Tulsa)

## Afternoon Session

Address\_\_\_\_\_Neda Chadsey, Bartlesville  
Presentation of Gifts

Award of Achievement Trophy to Winning  
County

Program Chairman: Mary Ethel Wright  
305 Braniff Building  
Tulsa, Oklahoma

Registration Fee: \$8.50—Hotel Tulsa

Rooms: Single, \$4.75 and up;  
Double, \$4.50 and up.

Dinner and Dance Guest Tickets: \$5.00.

Dance Guest Tickets: \$1.50.

## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**LIABILITY OF HOSPITAL FOR ADMINISTRATION OF ACCIDENTAL OVERDOSE OF DRUG**—A \$30,000 Federal suit against Chicago's St. Luke's Hospital in connection with a death from an accidental overdose of drugs, was settled out of court for \$22,500 on December 31, 1958. The suit had been filed on November 5 in behalf of the estate of George A. Schwab, Jr., 45, of Brentwood, Tennessee, who died on July 18 after a student nurse misread the dram symbol in a prescription as an ounce symbol and mistakenly administered three ounces of paraldehyde instead of the prescribed three drams.

**OSTEOPATHY**—The AMA's House of Delegates at the Clinical Session in December, 1958, requested the Judicial Council to review past pronouncements of the House on osteopathy and the status of the laws of the various states in this regard. The Council was asked to present its report and recommendations at the June 1959 Annual Meeting.

**FRENCH COURT DENIES MALPRACTICE CLAIM OF AN AMERICAN**—A French civil court ruled against an American plaintiff, Mrs. Gita L. Kassel, who sought 50-million francs damages (\$119,000) from Dr. Jean Voisin, Paris plastic surgeon. Allegations were that Mrs. Kassel, age 56, asked Voisin to iron out certain facial wrinkles, smooth eye pouches, and give her bosom a more youthful line. Results, she said were fine except for the latter procedure. The court rules that "... at a certain age, one should not ask the impossible," found for Dr. Voisin and assessed the costs against Mrs. Kassel.

**MEDICAL PROFESSIONAL LIABILITY EXPERIENCE IN ENGLAND**—Information has been obtained from the Medical Protection Society, Ltd., one of the two large medical professional liability defense groups in England, which indicates that as high as 70% of all medical professional liability suits in England over the past ten years are related to treatment received in the hospital.

Under English law the hospital is held vicariously liable for the negligence of all members of its medical staff of whatever status. The doctor himself remains personally liable for his own negligent acts, and thus the patient is entitled to sue either the hospital or the doctor or both. The recent trend has been for patients to sue the hospital only. The hospital may bring an action of contribution which may amount to complete indemnity against the particular member of the medical staff involved in the litigation. The following is an analysis of the annual reports of the Medical Protection Society, Ltd., for the past ten years:

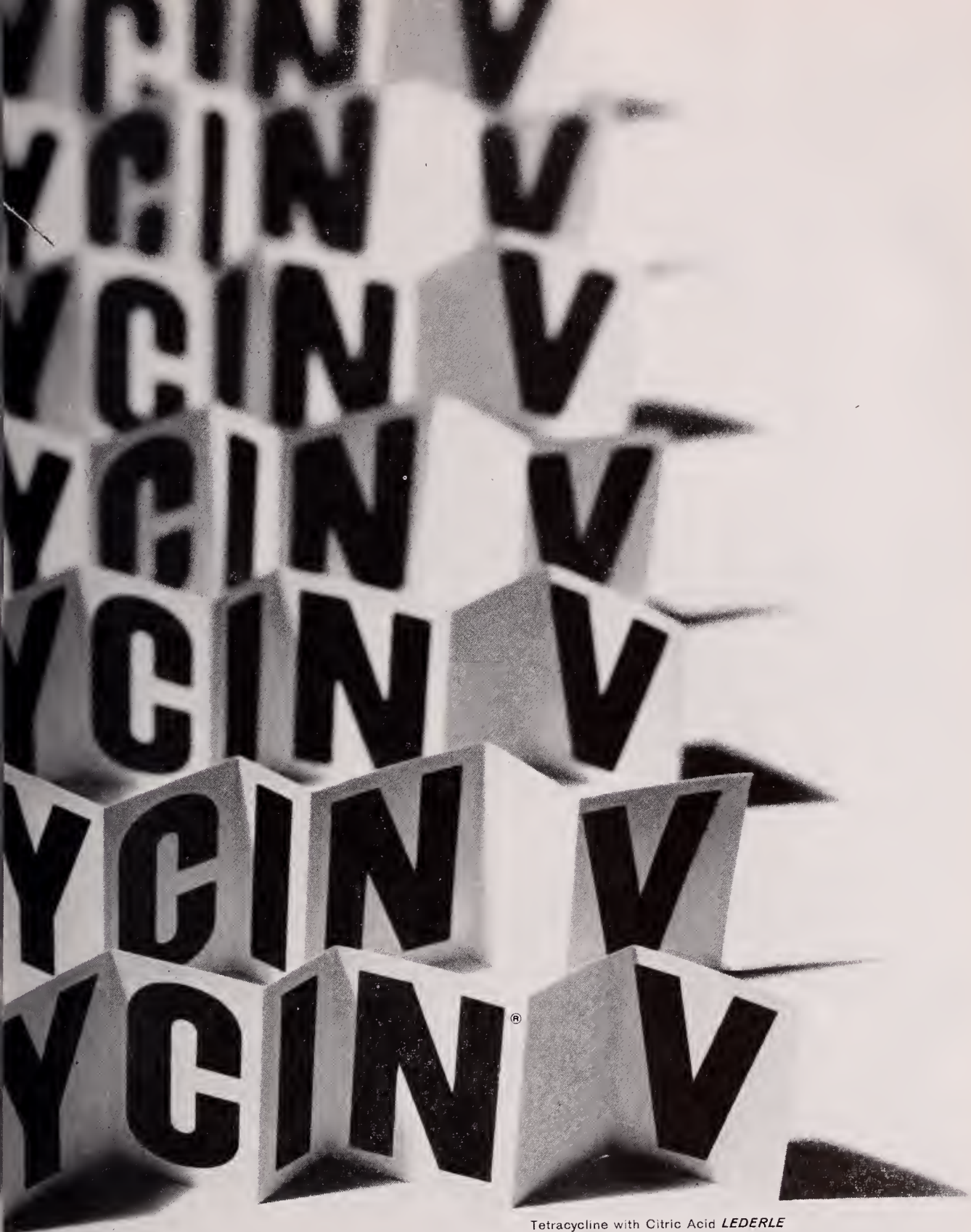
	Total Expenses of Defending and Conducting Cases of Members	Costs and Damages Paid on Behalf of Members
1946	£* 4,225	£* 11,313
1947	6,057	10,217
1948	6,417	11,179
1949	6,011	18,573
1950	9,607	14,613
1951	7,809	20,157
1952	12,356	22,864
1953	9,881	28,088
1954	10,482	21,371
1955	11,703	32,316
1956	16,311	40,854

\*Figures are in pounds sterling.

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



ACHROM  
ACHROM  
ACHROM  
ACHROM  
ACHROM  
ACHROM  
ACHROM



Tetracycline with Citric Acid **LEDERLE**

**LEDERLE LABORATORIES**, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York





# Medical News

## Air-Medics Association To Meet in San Antonio

The Twelfth Annual Meeting of the Air-Medics Association will be held April 18, 19 and 20, 1959 in San Antonio, Texas, with headquarters at the Hotel Menger. The organization, whose members are principally from the southwest district of the United States, is specifically interested in the promotion of air safety. A detailed program for the three-day meeting follows:

### SATURDAY, April 18th

- 3:00 p.m. to 6:00 p.m. Registration and "Get-Together"
- 7:30 p.m. Dinner Party, MEXICAN STYLE—CASA RIO, San Antonio River, 1½ blocks from Menger Hotel. Dinner to be served on boats cruising on the river.

### SUNDAY, April 19th

- 9:00 a.m. Registration, Hotel Menger.
- 10:00 a.m. Open Session.  
Invocation, P. W. Malone, M.D., Big Spring, Texas.  
Welcome Address.
- 10:30 a.m. Informal Discussion, Medical Examiner Problems, W. A. Ostendorf, Regional Flight Surgeon, Presiding.
- 12:00 noon Recess
- 2:00 p.m. Opening Session.  
Dudley P. Laugenour, M.D., Dallas, Texas, Moderator.  
Introduction of Guests and Visitors.
- 2:30 p.m. President's Address.  
Richard Henry Harrison, M.D., Bryan, Texas.
- 3:00 p.m. Reminiscences, Twenty-five years as Medical Examiner for Civil Aviation, Howard A. Dishongh, M.D., Little Rock, Arkansas.
- 3:30 p.m. Legal Problems Associated with Certification of Airmen, Mr. Charles A. Smith, Deputy Regional Attorney, Fort Worth, Texas, Air Traffic Control.
- 4:00 p.m. Mr. Paul H. Boatman, Fort Worth, Texas, Chief, Air Traffic Control Division.

4:45 p.m. Executive Council Meeting.

6:00 p.m. Cocktail Party, Menger Hotel.

7:00 p.m. President's Banquet, Menger Hotel.

### MONDAY, April 20th

- 10:00 a.m. Cardiovascular Disease in Relation to Safety in Aviation, John E. Smith, M.D., Washington, D.C.
- 10:30 a.m. Toxicology of Chemicals Used in Agricultural Aviation, Mr. Joseph J. Werbke, Agricultural Specialist, Fort Worth, Texas.
- 11:00 a.m. Treatment of Poisoning of Agricultural Chemicals, John S. Minnett, M.D., Dallas, Texas.
- 11:30 a.m. The Federal Aviation Agency, Federal Aviation Act of 1958, Mr. John S. Hunter, Regional Attorney, Fort Worth, Texas.
- 12:15 p.m. Luncheon, Menger Hotel
- 1:15 p.m. Business Meeting, Election of Officers.
- 1:45 p.m. F.A.A. Forum, Round Table Discussion, W. A. Ostendorf, M.D., Regional Flight Surgeon, Presiding.
- 4:30 p.m. Presentation of Officers for Following Year.

## Kansas Traineeship in Cardiology Announced

A nine-month traineeship in Cardiology, planned for the practicing physician, is announced by the Cardiovascular Laboratories, University of Kansas Medical Center, Kansas City, Kansas. The program begins September 15, 1959 and is terminated June 15, 1960.

Curriculum includes formal instruction and practical experience in all areas of modern cardiovascular diagnosis and therapy. Enrollment is limited and tuition is \$600.00.

For further information and application form, write: Department of Postgraduate Medical Education, University of Kansas School of Medicine, Kansas City 12, Kansas.



## 1959 Forand Bill Introduced

The 1959 version of the proposal to use the social security system to provide hospitalization and surgical services for those eligible for OASI benefits was introduced in the House by Rep. Aime Forand (D., R.I.) on February 18. The bill (H.R. 4700) differs with his 1957 bill in several points. They include permitting surgical services to be performed by other than board certified members. To finance the program, he would increase social security taxes, above increases already planned, by  $\frac{1}{4}$  of 1% for both employee and employer and  $\frac{3}{8}$  of 1% for the self-employed, starting in 1960.

In a statement placed in the Congressional Record, Mr. Forand noted the Department of HEW report on various means of financing medical care for the retired aged is due to be sent the committee in March "when I hope the Committee may be ready to commence hearings." There has been no indication from Chairman Mills of the House Ways and Means Committee on a date for hearings.

Mr. Forand conceded that among the strongest backers of his original bill, "there are some who question the feasibility of including surgical benefits at this time. This is one of the matters which the committee will want to weigh as it hears testimony." He said he intends to explore the possibility of (1) paying for diagnostic services, such as X-rays and laboratory tests, on an outpatient basis, and (2) including benefits for home nursing care through responsible agencies as visiting nurses association, hospitals or local health departments.

He commented further: "The American Hospital Association has recognized the need for some type of federal action and has been exploring alternatives . . . The American Medical Association has also acknowledged the need for vigorous action along new lines and urged its member societies to explore and support private programs that will help to avoid federal legislation."

## AAPS Plans Fort Worth Meeting

The Association of American Physicians and Surgeons, a national organization representing the nation's physicians in medical economics, public relations, legislation and freedom, will hold its 16th Annual Meeting of the Assembly and Delegates at Fort Worth, Texas on April 2, 3 and 4, 1959.

Among the laymen and physicians who will appear on the program will be: C. Hamilton Moses, Little Rock, Arkansas, President of the Arkansas Power and Light Company; Kent Courtney, New Orleans, Louisiana, publisher of *The Independent American*; Howard A. Nelson, M.D., Past President of the Mississippi State Medical Association; Robert S. Green, M.D., Cincinnati, Ohio; Charles Tansill, Washington, D.C., author of "Back Door to War;" Howard O. Smith, M.D., Marlin, Texas, President of the Texas Medical Association; and Robert D. Moreton, Fort Worth, President of the Tarrant County Medical Society.

Also appearing on the program will be the Reverend George Taggart, a Presbyterian Minister from Anderson, Indiana.

All physicians who are members of their county medical societies are eligible to attend the sessions.

## Search for Medical Book

An attempt to find a copy of a medical book for the author, who lost his copies to Communists in Korea several years ago, has been launched by a Muskogee woman.

Title of the book is *Surgical Diagnosis*. The paper bound volume is approximately 6 x 9 inches. Author of the book is A. G. Fletcher, M.D., of Seoul, Korea.

Original price of the book was \$3.00 and Doctor Fletcher will gladly buy a copy from anyone who has one available. Write to Mrs. Lera C. Larson, 215 South Seventh, Muskogee, Oklahoma.

# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER POSTGRADUATE PROGRAM Oklahoma City, Oklahoma Individual Postgraduate Courses

### ORTHOPEDIC SYMPOSIUM—April 3 and 4

Treatment of Athletic Injuries.

Sponsored by the Regional Committee on Trauma of the American College of Surgeons.

### FIFTH ANNUAL COMBINED SURGERY, RADIOLOGY, PATHOLOGY SYMPOSIUM—May 8 and 9

Diagnosis and Treatment of Thyroid Diseases.

Sponsored by the Oklahoma Association of Pathologists, Oklahoma Association of Radiologists and Oklahoma Chapter of American College of Surgeons. Guest participants of national reputation in surgery, radiology and pathology will participate.

### OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—May 22

Two guest lecturers and presentation of original papers by members of the various house staffs will highlight this program. Participating hospitals are: Hillcrest Medical Center, Tulsa, St. John's, Tulsa; McBride, Mercy, St. Anthony, University, Veterans Administration, Wesley, Oklahoma City; Central State Hospital, Norman.

## SERIAL POSTGRADUATE COURSE

Postgraduate Division  
UNIVERSITY OF OKLAHOMA MEDICAL CENTER  
Oklahoma City, Oklahoma  
1958-1959

April 8—Anesthesiology—Anesthesia for the Part-Time Anesthetist.

May 13—Pediatrics—Antimicrobial Therapy and Treatment of Infectious Disease in Childhood.

June 10—Surgery—Herniae.

Designed so physicians may attend four hours of formal instruction in the above fields while spending only one-half day from their office, this series is approved for credit by the Oklahoma Academy of General Practice. Time will be 3:30 to 8:30 p.m. on the Second Wednesday of each month, September through June. Registration is \$3.00 per session or \$25.00 for the entire series.

Further information concerning the individual and serial courses may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N. E. 13th Street, Oklahoma City, Oklahoma.

## INTERNATIONAL ACADEMY OF PROCTOLOGY APRIL 5-9, 1959

The Plaza

New York, New York

The Plaza Hotel, New York, will be the site of the Eleventh Annual Convention of the International Academy of Proctology, to be held April 5-9. Special emphasis will be placed on anal and rectal panel presentations and on newer treatment methods.

Non-members as well as members are invited to attend the meeting and the annual dinner-dance. There is no registration fee.

## SOUTHWESTERN SURGICAL CONGRESS

March 30-31 — April 1-2

Brown Palace Hotel

Denver, Colorado

The Annual Southwestern Surgical Congress will meet March 30-31, April 1-2, 1959 at the Brown Palace Hotel, Denver, Colorado. Detailed information is available by writing to the central office Southwestern Surgical Congress, 813 Medical Arts Building, Oklahoma City, Oklahoma.

## AMERICAN COLLEGE OF OBSTETRICIANS and GYNECOLOGISTS

April 6-8, 1959

Convention Hall

Atlantic City

The American College of Obstetricians and Gynecologists will hold its annual meeting in Atlantic City, April 6-8, 1959, with general sessions in Convention Hall.

For further information, write to Mr. Donald F. Richardson, Executive Secretary, The American College of Obstetricians and Gynecologists, P.O. Box 749, Chicago 90, Illinois.

## AMERICAN GOITER ASSOCIATION

April 30, May 1, and 2

Drake Hotel

Chicago, Illinois

The program for the 1959 meeting of the American Goiter Association will consist of papers dealing with the thyroid gland, its physiology, pharmacology, pathology and therapy.

Further information is available by writing to John C. McClintock, M.D., Secretary, 149½ Washington Avenue, Albany 10, New York.

## 13th ANNUAL

## ROCKY MOUNTAIN CANCER CONFERENCE

July 22-23, 1959

Brown Palace Hotel

Denver, Colorado

The Rocky Mountain Cancer Conference will be held at the air conditioned Brown Palace Hotel in Denver, July 22 and 23, 1959. Further information concerning the program and reservations may be obtained from Rocky Mountain Cancer Conference, 835 Republic Building, Denver 2, Colorado.



# Organization News

## Loan Fund Established

### By Garfield-Kingfisher Society

Members of the Garfield-Kingfisher County Medical Society recently approved the establishment of a student loan fund and simultaneously honored an Enid physician by affixing his name to the project. The R. C. Baker Student Loan Foundation was designed to not only serve worthy medical students, but also has the dual purpose of paying tribute to Doctor Baker for the meritorious service he has rendered to his society for many years.

The action came as a result of general interest in the creation of such a fund. A special study committee reported favorably on the project and the program was officially placed into effect.

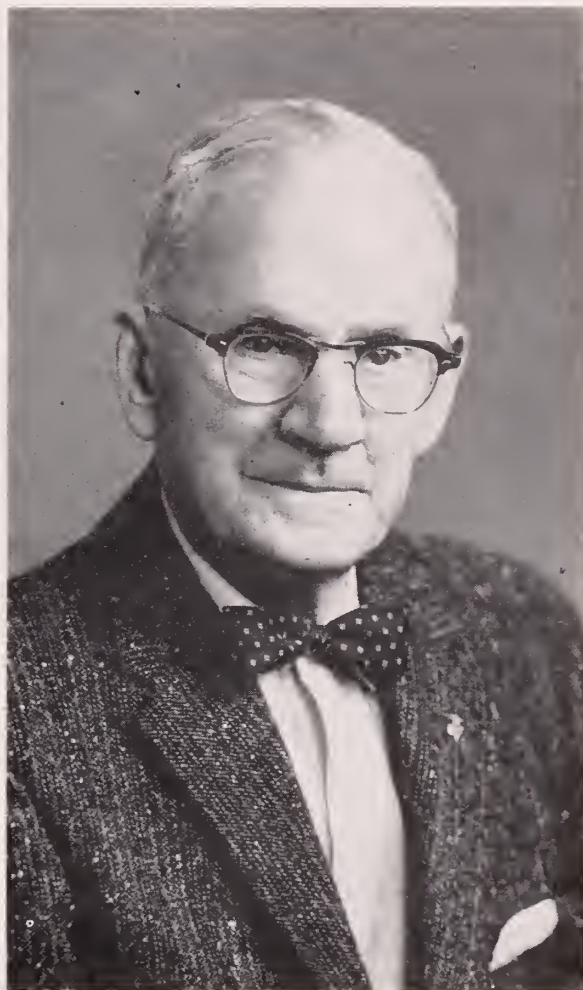
Rules and regulations governing the administration of the program were approved in the following form:

(1) As specified in the enabling Resolution adopted by the Garfield-Kingfisher County Medical Society October 22, 1958 this Foundation shall be known as THE R. C. BAKER STUDENT LOAN FOUNDATION.

(2) Its purpose shall be to lend financial assistance on a loan basis to worthy medical students to enable them to continue their college course in medicine.

(3) The Foundation shall be administered by the Board of Directors of the Garfield-Kingfisher County Medical Society.

(4) The Secretary-Treasurer of the Garfield-Kingfisher County Medical Society shall serve as Executive Secretary of the Foundation, collect all monies due the Foundation and, when authorized by the Board of Directors, sign all checks drawn on the Foundation fund.



R. C. BAKER, M.D.

(5) Loans shall be made only to students in their junior or senior years in college at an interest rate of four per cent (4%) per annum.

(6) The terms of re-payment of the loan shall be at the discretion of the Board of Directors and based on the applicant's ability to pay.

(7) Approval of applications for loans shall be made by a majority of the Board of Directors present and voting.

(8) The Board shall examine carefully



the background of the applicant, his moral reputation, his financial integrity and, if deemed necessary it shall contact, by letter, the Dean or President of his school to ascertain the applicant's general behavior in school, his attitude toward study, and his scholastic standing.

(9) The Board of Directors shall make an annual report to the Society of their stewardship.

Doctor Baker's history of service to his county society and organized medicine has been one of unselfish dedication. He has served as Secretary-Treasurer of the local group for the past eleven years and has edited the *Bulletin* for twenty-five years. Journalism experience was gathered while on active duty with the 45th Division during World War II. Although serving primarily as a medical officer, he helped organize the *45th Division News* and served as a member of the original staff.

In 1953, Doctor Baker was honored by the Oklahoma State Medical Association when he was made an Honorary Member. Two years later, the O.S.M.A. paid tribute to his half-century of service by awarding him a 50 year pin.

## **Health and Accident Program Gains Momentum**

The installation of the new official Oklahoma State Medical Association Disability Insurance Program is progressing well, the North American Accident Insurance Company, the underwriting company, reports.

At the halfway mark in the installation campaign, 518 applications have been received. Of this total number of applications 412 members have transferred from the former Oklahoma State Medical Association endorsed program; 106 applications have been received from members not previously insured.

It should be noted by all members that the deadline for enrollment during the charter enrollment period is April 15th.

The new program was designed by the

Insurance Committee of the Oklahoma State Medical Association, Ralph Smith, M.D., Chairman. The enrollment campaign and future operations of the program will be supervised by the Insurance Committee.

North American reports that most members are enrolling in Plan 1 and are buying the additional daily hospital indemnity, which provides \$15.00 per day.

Plan 1 provides lifetime accident coverage, five-year illness coverage with benefits beginning on the first day on accidents and on the eighth day on illness.

Members interested are encouraged to enroll before the deadline in order to take advantage of the outstanding enrollment privileges.

For additional information, contact your Oklahoma State Medical Association office or the North American office at 2901 Classen Boulevard, Oklahoma City.

## **"Americans Abroad Program" Selects Oklahoman**

Ralph W. Rucker, son of the late Ralph W. Rucker, M.D., Bartlesville physician, will be among 23 United States High School juniors who will attend school in New Zealand for five months under the sponsorship of the Americans Abroad Program of the American Field Service.

The American Field Service, sponsored by the Rotary Club International, is the largest secondary school age exchange program in the United States. Some 1170 students from other countries are living with American families and studying in American high schools this year. Schools participating in this program are permitted to submit application for two candidates to go to New Zealand on scholarship for a five month term.

The American Field Service students will be placed in the 5th Form or the Lower 6th Form, where their classmates will be between 15 and 17 years of age and which are approximately equivalent to 11th and 12th grades in the United States high schools.

## CCC Transfer Prompts Council Meeting

The Introduction of Senate Bill 20 at the 27th Oklahoma Legislature has prompted a special session of the O.S.M.A.'s Council. Ramifications and resultant disagreement over the propriety of the provisions of this bill made it necessary for President Mohler to seek official and representative opinion from the policy making body.

Late developments in the status of Senate Bill 20 are as follows:

Within a few days after the Council meeting, the bill was approved by the Senate Social Welfare Committee and passed by the Senate. It is now in the Social Welfare Committee of the House, where one public hearing has been held.

Some of the OSMA Amendments were accepted by the Senate, others were not.

Senate Bill 20 has been presented as a bill designed to relieve the taxpayers from additional tax burdens by abolishing the present Crippled Children's Commission and transferring its functions and properties to the Department of Public Welfare, thereby taking advantage of state assistance funds earmarked for the Welfare Department's use.

### Sub-Committee Formed

When the bill came to the attention of the O.S.M.A., it was discussed at some length by the Public Policy Committee. In view of the complexities of the issues, a special sub-committee was formed and assigned the task of developing recommendations.

The sub-committee asked for written analysis of the bill from interested agencies and organizations in order that all sides could be heard before a decision was reached. Those groups and individuals responding to the request were: the Oklahoma Hospital Association (favoring the bill); the Oklahoma Society for Crippled Children (opposing the bill); and the Director of the Crippled Children's Commission (opposing the bill).

On the basis of the arguments it heard, the sub-committee prepared a written statement which was subsequently approved by

the Executive Committee of the Council and presented to the Social Welfare Committee of the Senate. In brief, the report stated that it seemed apparent that there were several ills in the laws governing the operation of the CCC, only one of which was inadequate financing. For that reason, it was recommended that the bill be tabled pending more thorough study and that, in the meantime, funds be transferred from the DPW to the CCC in order to assure adequate financing.

### Council Acts

Since this stand met with varying degrees of support and opposition, both in and out of medical circles, Doctor Mohler ask the Council to review the association's position.

Prior to the four-hour Council meeting, the full Public Policy Committee met to re-evaluate the position taken by the sub-committee. At this time, it was decided that the association should not become part of a controversy between two governmental agencies and the hospital group, particularly since physicians are interested only in the quality of care and not governed by a financial interest in the program.

They did feel, however, that certain amendments should be incorporated into the bill to safeguard continued high quality care. In a final action, they adopted a report to the Council which: expressed a need for further study; recommended that the association neither approve nor disapprove of the transfer; and suggested certain amendments that would make the present proposal more palatable.

At the Council meeting, pro and con presentations were heard from Mr. L. E. Rader, Director of the Department of Public Welfare, Mr. Ira McConnell, Director of the Commission for Crippled Children and Mr. Dick Clark, Director of the Oklahoma Society for Crippled Children. In addition, the Public Policy Committee was represented by J. R. Stacy, M.D., Chairman.

After lengthy discussion and questioning of the participants, the Council took the following action, as abstracted from the official minutes: (bold face indicates changed wording).



## O.S.M.A. COUNCIL MEETING

March 1, 1959

Doctor M. O. Hart moved that we accept the recommendation of the Public Policy Committee of the Oklahoma State Medical Association in regard to Senate Bill 20, which was as follows:

The Public Policy Committee recommends that Senate Bill 20 be subjected to a comprehensive study of the philosophical and practical aspects of the maintenance of a corrective medical program for children.

The Public Policy Committee further recommends that Senate Bill 20 be amended in the following manner:

SECTION 2—(Sub-Section "B")—to read as follows: All written **bona fide** contracts, leases and such other written agreements as may have been entered into by the Oklahoma Commission for Crippled Children, and such responsibilities as are in effect on the effective date of this Act, shall be assumed by and become binding upon the Oklahoma Public Welfare Commission and the State Department of Public Welfare.

SECTION 3—(Sub-Section "b")—to read as follows: The term "child" when used in this Act shall mean any person **unwed** under twenty-one (21) years of age, whose parents, or parent or legal guardian is financially unable to provide essential medical, dental, hospital, nursing, or convalescent home care.

SECTION 3—(Sub-Section "d")—to read as follows: The term "Committee" when used in this Act shall mean the Professional Advisory Committee, **or other Committees authorized by the Commission.**

SECTION 3—(Add Sub-Section "E")—which is as follows: **The term "Chairman" when used in this Act shall mean the Chairman of the Professional Advisory Committee.**

SECTION 4—COMMISSION AS AGENT OF THE STATE. The Commission is hereby designated as the agency of the State responsible for and having authority for the administration and operation of the program of the services for children as stated in Section 5 of this Act, and to supervise generally the administration of any services related to this program but not administered directly under the Commission. The purposes of this program shall include the development, extension and improvement of services for locating such children and for providing medical, **dental**, corrective and other services and care, and facilities for diagnosis, hospitalization, treatment and after care.

SECTION 5—(Sub-Section "b")—to read as follows: The Commission shall receive and expend in accordance with such plan all **necessary** funds made available to it by the United States Government, by the State or its political sub-divisions, or by any other sources for such purposes.

SECTION 5—(Sub-Section "d")—to read as follows: The Commission shall **establish** and maintain such methods of administration, including those necessary

to establish and maintain a merit system of personnel administration, as are necessary for effective and efficient operation of the plan; shall maintain records and prepare reports of services rendered; and shall cooperate with health, **dental**, medical, nursing and welfare agencies and organizations, and with any other agency of this State charged with the administration of laws providing for the vocational or remedial rehabilitation of handicapped children.

SECTION 5—(Sub-Section "g")—to read as follows: The Commission shall have authority to provide for the expenditure of all funds for the administration and operation of the program as specified in this Act. This includes payment for **physician's and dentist's services as and when approved by the Oklahoma State Medical Association and the Board of Governors of Registered Dentists.**

SECTION 6. PROFESSIONAL ADVISORY COMMITTEE. The Commission shall appoint a Professional Advisory Committee, to be composed of **seven (7) members, four (4) of whom shall be licensed doctors of medicine and one (1) of whom shall be a licensed dentist, recommended by the Board of Governors of Registered Dentists, one (1) Hospital Administrator of a licensed general hospital, as recommended by the Oklahoma State Hospital Association; and one (1) licensed osteopath, as recommended by the Oklahoma Osteopathic Association.** Not less than four (4) members of the Committee shall be appointed from a list of not less than nine (9) names nominated for that purpose by the **Council of the Oklahoma State Medical Association, one of whom shall be the Chairman.**

SECTION 6—(Sub-Section "b")—to read as follows: The members of the Committee shall receive as compensation for their services a per diem fee of fifteen (\$15.00) dollars for each day the Committee is in session and necessary travel expenses, to be paid from funds appropriated to the Commission. Meetings shall be called by the Commission or the Director, **or the Chairman of the Professional Advisory Committee, and there shall be at least four (4) meetings held each year.**

SECTION 6—(Sub-Section "c")—to read as follows: It shall be the function of the Committee to act as an Advisory body to the Commission to **establish** standards for professional services rendered to children under this program and to **establish** standards for hospital and convalescent care, and to advise on such other matters as may be referred to it by the Commission.

SECTION 7—POWERS OF COMMISSION—(Sub-Section "a")—The Commission is hereby authorized and empowered to approve or disapprove hospitals, convalescent homes, nursing homes, or foster and boarding homes, **which meet standards established by the Professional Advisory Committee, and to contract for their services on a basis not to exceed their per diem cost basis.** The Commission is hereby also authorized and empowered to approve or disapprove professional personnel, **which meet standards established by the Professional Advisory Committee, for the various**



types of services authorized and contemplated by this Act, and to contract for their services.

**SECTION 7—(Sub-Section "b")—List State Board of Medical Examiners before Optometry.**

**SECTION 13. UNIVERSITY HOSPITALS REVOLVING FUND.** All monies paid by the Commission to the Children's Memorial Hospital shall be deposited in the revolving fund of the University Hospitals, and shall be used for general operating expense of the Children's Memorial Hospital, including payment of personal services.

**SECTION 14. APPROPRIATION.** The Oklahoma Public Welfare Commission is hereby authorized to allocate from the State Assistance Funds a sum not to exceed one million two hundred fifty thousand (1,250,000) dollars per annum, or portion thereof which may be available for the purpose of carrying out the provisions of this Act; provided said funds shall be non-fiscal and shall be used from such allocation for purposes as prescribed in this Act.

**SECTION 15—RESPONSIBILITY OF BUDGET OFFICER.** The State Budget Officer is hereby authorized and directed to recognize any request of the Oklahoma Public Welfare Commission for such transfer on a monthly basis and he shall transfer from the State Assistance Funds to the State Crippled Children's Fund the amount requested prior to the allocation of funds to the various categories of assistance as now provided by law.

## **Nurses' Association Establishes Speakers Bureau**

A Speakers Bureau was recently established by the Board of Directors of Oklahoma State Nurses' Association.

Persons appointed to this Bureau are nurses employed in the various fields of nursing. Purpose of the organization is to acquaint persons outside the profession with nursing in general, health needs of the state in relation to nursing, and to assist in recruiting qualified persons into the profession.

Members of the newly formed group are Mrs. Letha Billings, R.N., Box 388, Woodward; Mrs. Rachel Cooley, R.N., 717 North Columbia, Tulsa; Mrs. Grace Neilson, R.N., 1620 North East 46th, Oklahoma City; Miss Elaine McMinn, R.N., 700 Culbertson Drive, Oklahoma City; Mrs. Reba Shipley, R.N., 328 Brookline Place, Bartlesville; Mrs. Marguerite Berry, R.N., 615 East Okmulgee,

Muskogee; Mrs. Johanna St. Clair, R.N., 408 Summit, Lawton; Miss Jaunita Proctor, R.N., 119 Northwest 14th, Oklahoma City; and Miss Clara Gerstenkorn, R.N., USPH Hospital, Talihina.

To secure a speaker, write to the Oklahoma State Nurses' Association, 1110 Cravens Building, Oklahoma City, or to the speaker directly.

## **51 Tulsa Doctors Move To New Building**

Tenants of the new seven-story Doctors' Building at 21st Street and Lewis Avenue, Tulsa, were recently announced by Arnold H. Ungerman, M.D., president of the Twenty-First Street Building Corporation, owner of the structure.

Occupying the new building will be 51 physicians, four dentists, a prescription shop and a restaurant.

The physicians are: Sol Wilner, D. B. Lhevine, William Benzing, R. E. Nathan, Samuel Goodman, M. M. Cash, R. I. Lubin, Leonard L. Kishner, Irvin Braverman, E. S. Cohen, D. L. Brawner, William R. R. Loney, Theodore Turnbull, Herbert J. Forrest, E. O. Johnson, R. E. Dillman, John Ward.

K. C. Reese, L. L. Stokes, R. L. Anderson, I. H. Nelson, Leo Lowbeer, E. Philip Klein, R. D. Grubb, E. E. Palik, Vance Lucas, Roger E. Wehrs, R. W. Goen, W. J. O'Meilia, P. M. Schreck, R. A. Nelson, E. N. Lubin, J. D. Shipp, E. Malcolm Stokes, V. William Wood, A. H. Bungardt, William C. Alston, Robert W. Spencer, Matthew B. Moore, E. R. Shapard III, H. F. Flanigin, Arnold H. Ungerman, Milford S. Ungerman, Norman L. Dunitz, James B. Thompson, Paul O. Shackelford, C. S. Lewis, Robert G. Tompkins, R. M. Shepard, Jr., Harold A. White and D. L. Garrett.

Off-street parking for cars of 150 patients will be maintained east of the building. A lot to accommodate 100 cars of doctors and their employees will also be available.



### **TULSA PHYSICIAN HONORED**

John Franklin Gorrell, M.D., (left), Tulsa eye-ear-nose and throat specialist, is seen as he receives a 50-year pin from Wilkie D. Hoover, M.D., Delegate from the Oklahoma State Medical Association to the American Medical Association. The presentation was in recognition of the completion of 50 years in practice by Doctor Gorrell in 1958. The pin was awarded at the February 9th meeting of the Tulsa County Medical Society.

Doctor Gorrell graduated from the University of Pennsylvania School of Medicine in 1908. He interned at Columbia Hospital in Pittsburgh and took his residency training at Manhattan E.E.N.T. Hospital in New York. Doctor Gorrell practiced at Homestead and Everett, Pennsylvania before coming to Tulsa in 1916. He served as President of Tulsa County Medical Society in 1930. Doctor Gorrell retired in 1956. His son, Benjamin F. Gorrell, M.D., practices in Tulsa.

# 1959 Delegates and Alternates

(Continued from Page 186)

## NORTHWEST

BEAVER  
DEWEY  
ELLIS  
HARPER  
WOODWARD

NO ENTITLEMENT  
NO ENTITLEMENT  
M. H. Newman, M.D., Shattuck  
NO ENTITLEMENT  
R. A. McGrew, M.D., Woodward

OKFUSKEE  
OKLAHOMA

D. M. Rose, M.D., Okemah  
Mark R. Johnson, M.D., Okla. City  
Robert C. Lawson, M.D., Okla. City  
Lynn Harrison, M.D., Okla. City  
Ella H. Murray, M.D., Okla. City  
Vernon D. Cushing, M.D., Okla. City  
Virgil Forester, M.D., Okla. City  
V. M. Rutherford, M.D., Midwest City  
E. E. Shircliff, M.D., Okla. City  
P. D. Casper, M.D., Okla. City  
Jack G. Glasgow, M.D., Okla. City  
E. Cotter Murray, M.D., Okla. City  
Paul D. Macrory, M.D., Bethany  
David C. Lowry, M.D., Okla. City  
Paul D. Erwin, M.D., Okla. City  
Martin H. Andrews, M.D., Okla. City  
Gerald L. Beasley, M.D., Okla. City  
M. B. Glismann, M.D., Okla. City  
J. T. McInnis, M.D., Okla. City  
C. M. Bielstein, M.D., Okla. City  
A. C. Lisle, Jr., M.D., Okla. City  
R. E. Carpenter, M.D., Okla. City  
Robert T. Sturm, M.D., Okla. City

OKMULGEE  
OSAGE  
PAYNE  
PAWNEE  
PITTSBURG

NOT REPORTED  
Vincent Mazzarella, M.D., Hominy  
NOT REPORTED  
NOT REPORTED  
Thurman Shuller, M.D., McAlester  
F. T. Bartheld, M.D., McAlester

PONTOTOC  
POTTAWATOMIE

NOT REPORTED  
Horton E. Hughes, M.D., Shawnee  
Francis P. Newlin, M.D., Shawnee

ROGERS  
MAYES

NOT REPORTED  
NOT REPORTED

STEPHENS

NOT REPORTED

TEXAS

NOT REPORTED

CIMARRON

NO ENTITLEMENT

TILLMAN

Jack D. Honaker, M.D., Frederick

TULSA

L. A. Munding, M.D., Tulsa  
Hugh Perry, M.D., Tulsa  
John E. McDonald, M.D., Tulsa  
Walter S. Larrabee, M.D., Tulsa  
Simon Pollack, M.D., Tulsa  
Harold J. Black, M.D., Tulsa  
James C. Peters, M.D., Tulsa  
Charles E. Wilbanks, M.D., Tulsa  
Paul O. Shackelford, M.D., Tulsa  
Earl M. Lusk, M.D., Tulsa  
Ben F. Gorrell, M.D., Tulsa  
Vincel Sundgren, M.D., Tulsa  
F. L. Flack, M.D., Tulsa  
N. C. Gaddis, M.D., Tulsa

WASHINGTON

Fred C. Wallingford, M.D., Bartlesville  
C. S. Huntington, M.D., Bartlesville  
James H. Elliott, M.D., Nowata

WOODS

NOT REPORTED

ALFALFA

NOT REPORTED

Walter Dersch, Jr., M.D., Shattuck

R. G. Obermiller, M.D., Woodward  
C. A. Carmack, M.D., Okemah  
Arthur Schmidt, M.D., Okla. City  
Elmer Musick, M.D., Okla. City  
S. R. Shaver, M.D., Okla. City  
Alvin Jackson, M.D., Okla. City  
James S. Boyle, M.D., Okla. City  
H. T. Avey, M.D., Okla. City  
John W. DeVore, M.D., Okla. City  
J. J. Gable, M.D., Okla. City  
Robert J. Morgan, M.D., Okla. City  
Charles E. Delhotal, M.D., Okla. City.  
Dick Lowry, M.D., Okla. City  
John F. Kuhn, M.D., Okla. City  
C. Alton Brown, M.D., Okla. City  
J. Hartwell Dunn, M.D., Okla. City  
Ancel Earp, Jr., M.D., Okla. City  
Rex Kenyon, M.D., Okla. City  
Scott Hendren, M.D., Okla. City  
John D. Ingle, M.D., Okla. City  
Charles H. Wilson, M.D., Okla. City  
J. C. Amspacher, M.D., Okla. City  
Hubert M. Anderson, M.D., Okla. City  
R. D. Ansbaugh, M.D., Okla. City

Rex Daugherty, M.D., Pawhuska

G. M. Brown, Jr., McAlester  
E. D. Greenberger, M.D., McAlester

Francis A. Davis, M.D., Shawnee  
Louis E. Speed, M.D., Shawnee

R. G. Johnson, M.D., Frederick  
Robert T. Cronk, M.D., Tulsa  
G. R. Russell, M.D., Tulsa  
Byron L. Bailey, M.D., Tulsa  
Felix R. Park, M.D., Tulsa  
Leo Lowbeer, M.D., Tulsa  
Edward L. Moore, M.D., Tulsa  
Frank J. Nelson, M.D., Tulsa  
John C. Perry, M.D., Tulsa  
James H. Neal, Jr., Tulsa  
Henry A. Brocksmith, M.D., Tulsa  
Adolph N. Vammen, M.D., Tulsa  
Carl H. Guild, Jr., M.D., Tulsa  
Craig S. Jones, M.D., Tulsa  
Gifford H. Henry, M.D., Tulsa  
Clair Liebrand, M.D., Bartlesville  
H. E. Denyer, M.D., Bartlesville  
O. L. Grigsby, M.D., Nowata



## A Pound of Prevention

Over 30% of the apparently healthy working population has remedial medical problems. This has been substantiated by statistics accumulated from the periodic health examination phase of a number of formalized industrial medical programs. When it is realized that a third of employed persons has correctable health defects, many of which are unknown to the individual, it is obvious that the re-examination program offers many benefits to a number of parties.

The benefits to the individual employee are (1) early detection of disease in its incipient and remedial stage, (2) determination of any marked change from a previously established health status, (3) to determine if the ordinary aging processes are being accelerated, and if so, why? and (4) the interval examination affords a most opportune time for the physician to discuss with the employee the health problems discovered and their significance.

In the final analysis, this means job security, increased earning power and in general, a happier and more productive life for the employee.

The benefits which accrue to the employer are also numerous, a few of which are (1) increased employee efficiency through better job placement, reduction in absenteeism and turnover, and improved morale and physical well-being, (2) early detection of occupational and environmental problems. Ultimately, this means a considerable savings in dollars and cents to industry.

The voluntary periodic medical examination program as accepted by employee and employer today greatly overcomes the ordinary human tendency to neglect personal health maintenance. Detection of disease in its early stage means early referral to the family physician for definitive care.

Prepared by

**OSMA Committee on Occupational Medicine**

## What's Your Hobby, Doctor?

The **DOCTOR'S HOBBY SHOW** has become one of the outstanding attractions at the **OSMA ANNUAL MEETING**. A project of the Woman's Auxiliary, the show offers physicians an excellent opportunity to display the products of their leisure time. If you have a hobby, don't keep it a secret . . . Show your colleagues what you can do . . . **APPLY NOW!**

### Doctor's Hobby Show

O.S.M.A. Annual Meeting

Mayo Hotel

Tulsa

**APRIL 20, 21, 22, 1959**

## Application For Hobby Show Space

**53rd ANNUAL MEETING**

**OKLAHOMA STATE MEDICAL ASSOCIATION**

**DESCRIBE EXHIBIT**, including information as to size, shape and value (insurance is provided):

**IMPORTANT:** Deliver Exhibit to Mayo Hotel by noon, April 19. Your Exhibit will be personally attended and insured at all times. It must be picked up by noon, April 22, when management responsibility ends.

### MAIL THIS FORM TO:

Mrs. Wm. R. R. Loney, Chairman  
Doctor's Hobby Show  
2440 East 26th Place  
Tulsa 14, Oklahoma

## **DPW Problems Answered By OSMA Committee**

Two problems in regard to the operation of the medical care program for welfare recipients have been brought to the O.S.M.A.'s committee for recommendations, according to Mark R. Johnson, M.D., Chairman. The committee has considered these problems, which concern billing and diagnoses and has released information designed to clarify any misunderstandings.

### **Bill Patients for Service**

A recurring problem for welfare fund recipients pertains to the handling of insurance benefits which are awarded to the policy holder through direct payments at the conclusion of treatment. Physicians who submit claims in such cases are advised to render statements to their patients in the usual manner for the full amount of their fee. This will serve to notify the patient that indebtedness has accrued and that pending action by third parties, the amount reflected in the statement is due. Should the Department of Public Welfare honor the claim with partial payment, such additional payments as may be made by the patient or his insurance company can be accepted by the physician in order to retire the remaining balance of the patient's account. In the event that such delayed payment exceeds the balance of the original statement for services, the surplus will be refunded to the Department of Public Welfare by the physician.

### **Diagnoses A to Z**

Plaintive rumblings concerning alleged "dual diagnoses" have been heard in recent weeks. It has been stated that certain insurance companies are concerned about cases in which diagnoses submitted to their companies are not identical to the diagnoses (in the same cases) submitted on DPW claims and/or recorded in hospital case records. The Welfare Medical Care Committee has recently approved the following statement concerning this problem:

"We do not believe that any physician deliberately or willfully records misleading, improper or incomplete diagnoses, in any

reports concerning cases under his care. It is appreciated, however, that in certain circumstances additional information developing at some later date may alter the original list of diagnoses in any report concerning his patient. We feel further that it is the responsibility of the insurance company to establish a clear understanding of the attending physicians' diagnoses and not the responsibility of the hospital, the patient or any other third party involved."

## **Glaucoma Identification Card**

A glaucoma identification card for nationwide distribution was announced today by The National Medical Foundation for Eye Care as a major public service project.

The card, similar in purpose to the diabetes identification card, will alert examining physicians that the patient has glaucoma and is using drugs.

The names of the patient and of the ophthalmologist who prescribed the drugs, appear on the card, together with the prescription. This information alerts the examining physician to the patient's condition and the treatment he is undergoing and forestalls the use of any contra-indicated medication by the examining physician.

Glaucoma patients who run out of their prescribed medicine while away from home are able to get a new supply quickly, without interrupting treatment, an important factor in glaucoma therapy.

In addition to the prescription for drugs, the glaucoma card also carries the spectacle prescription of the patient, which enables him to replace broken lenses when away from home.

The National Medical Foundation for Eye Care glaucoma cards were printed as a public service by Abbott Laboratories, and are being initially distributed to physicians by the Laboratories. Packets of the cards may be obtained by writing to the Foundation office, 250 West 57th Street, New York 19, New York, or directly to Professional Services, Abbott Laboratories, North Chicago, Illinois.

# Have You Heard

J. SAMUEL BINKLEY, M.D., Oklahoma City, will present a paper at the annual meeting of the Society of Head and Neck Surgeons, Washington, D.C., March 30 and 31.

ALLEN H. BUNCH, M.D., a 1950 graduate of the University of Oklahoma School of Medicine, is a new associate of the Jones Clinic, 216 North Fourth Street in Seminole.

HYMAN FRIEDMAN, M.D., formerly in practice in Mercedes, Texas, has opened his offices in Texhoma. Doctor Friedman spent two years in residency at San Antonio before beginning his practice in Mercedes.

ODIS A. COOK, M.D., has recently moved from Sulphur to Norman where he is associated with the Student Health Service.

LOUIS N. DAKIL, M.D., McAlester, has been named to the national board of trustees of the American Lebanese Syrian Associated Charities. Doctor Dakil has been active in the work of the ALSAC for the past several years.

Remodeling of quarters at Hillcrest Medical Center, Tulsa, to accommodate the \$100,000 library of the Tulsa County Medical Society began early this month. The 12,500-volume library will occupy 2,610 square feet

of space on the ground floor of the polio unit of the medical center at 12th and Troost Avenue.

JACK GREGSTON, M.D., of Marlow plans to open an office in Duncan soon. He will continue his practice and maintain his clinic in Marlow.

DONALD S. MISHLER, M.D., Tulsa, was a seminar instructor in plastic surgery of the head and neck in Mexico City and Acapulco during February. The seminar was sponsored by the American Otorhinologic Society for Plastic Surgery in cooperation with the Mexico Society of Otolaryngology and the University of Mexico.

J. N. OWENS JR., M.D., Oklahoma City, was elected a District Director of the South Central Association of Blood Banks at their first annual meeting in Austin, Texas, February 6 and 7.

ROBERT O. RYAN, M.D., formally opened his new clinic in Norman on Sunday, February 1.

RAYMOND ENGLES, M.D., Oklahoma City, has moved to Durant where he will be associated with his brother, LeRoy Engles, M.D., in the Engles Clinic.

---

## A Basic Human Right

(Continued from Page 127)

prohibition. I appeal to you simply from a moral point of view. I have no personal interest other than an appeal for human rights. As far as prohibition working a hardship on me, it has not. There is no lack of opportunity to drink in this state.

Having been transferred from Illinois by a large company in October, 1957, I have found Oklahoma to be a fine place to live with the exception of this odious law. My wife, who is a native Oklahoman, and I are agreed. We feel so strongly about this matter that we will be forced to seek a transfer

to another company location if this democratic method of changing an oppressive law fails.

Since I am not as virtuous as Socrates, who would obey a bad law, I have drunk in Oklahoma in the past and I intend to drink in the future. I do, however, refuse to raise my children in an atmosphere of disrespect for law.

Thank you for your attention to this matter.

Respectfully yours,  
(s) Edward A. Quattrocki.



# Book Review

**BONE TUMORS.** 1959, Louis Lichtenstein, M.D. Blue cloth cover, pg. 402, \$12.00: The C. V. Mosby Co.

This book represents the continued advancement and clarification of bone tumor pathology that is progressing so much in recent years.

The classification presented by Lichtenstein is clear cut and all inclusive. Each clinical entity is well represented with clinical findings, x-ray findings and pathology, gross, microscopic, and prognosis. The illustrations, which are numerous, are of excellent quality including reproductions of x-rays films and photomicrographic.

Many non neoplastic bone conditions often confused with bone tumors are covered in Appendix I, Appendix II, and a new feature covers tumors of synovial joints, bursal, and tendon sheaths.

This book is an excellent source book with which one dealing with bone tumors should be familiar.—*Edwin R. Maier, M.D.*

## Books Received

The following books have been received by *The Journal* office. As space permits and the context warrants, books will be reviewed.

*Atrial Arrhythmias, Digitalis & Potassium.*

Bernard Lown, M.D. and Harold D. Levine, M.D. Landsberger Medical Books, Inc., New York, New York. Price \$6.90.

*Amino Acids and Peptides with Antimetabolic Activity.* G. E. W. Wolstenholme, & Cecilia M. O'Connor, Little, Brown & Co., Boston, Massachusetts. Price \$8.75.

*Bending The Twig.* Augustin G. Rudd, American Book-Stratford Press, New York, New York. Price \$3.95.

*Biophysical Principles of Electrocardiography.* Robert H. Bayley, M.D., A Hoe-

ber Harper Book, New York, New York. Price \$8.00.

*The Birth of Normal Babies.* Lyon P. Streat, Ph.D., Twayne Publishers, New York, New York. Price \$3.95.

*Bone Tumors.* Louis Lichtenstein, M.D., C. V. Mosby Co., St. Louis, Missouri. Price \$12.00.

*Breast Cancers.* Albert Seagaloff, C. V. Mosby Company, St. Louis, Missouri. Price \$5.00.

*Cancer and the Atomic Age.* Clement A. Tavares, M.D., Vantage Press, Inc., New York, New York. Price \$3.50.

*The Care of the Pediatric Patient.* E. V. Cowdry, C. V. Mosby Company, St. Louis, Missouri. Price \$8.00.

*Chemistry and Biology of Mucopoly-Saccharides.* G. E. W. Wolstenholme and Maeve O'Connor, Little, Brown & Company, Boston Massachusetts. Price \$8.50.

*Clinical Enzymology.* Gustav J. Martin, Sc. D., Little, Brown & Company, Boston, Massachusetts. Price \$6.00.

*Clinical Obstetrics & Gynecology.* Allan C. Barnes, M.D., and Curtis J. Lund, M.D., Paul B. Hoeber, Inc., New York, New York.

*Clinical Obstetrics and Gynecology, Genital Cancer/Operative Obstetrics.* Daniel G. Morton, M.D. and J. Robert Willson, M.D., Paul B. Hoeber, Inc., New York, New York. Price \$18.00.

*The Cerebrospinal Fluid.* Cecilia M. O'Connor and G. E. W. Wolstenholme, Little, Brown & Company, Boston, Massachusetts. Price \$9.00.

*Correlative Neuroanatomy & Functional Neurology.* Joseph G. Chusid, M.D. and Joseph J. McDonald, M.D., Lange Medical Publications, Los Altos, California. Price \$4.50.

- Dietary Prevention & Treatment of Heart Disease.* John W. Gofman, M.D., Alex V. Nichols, Ph.D., and E. Virginia Dobbin, G. P. Putnam's Sons, New York, New York. Price \$3.95.
- The Doctor Business.* Richard Carter, Doubleday & Company, New York, New York. Price \$4.00.
- Electrocardiography.* Michael Bernreiter, M.D., J. P. Lippincott Company, Philadelphia 5, Pennsylvania. Price \$5.00.
- Emergency War Surgery.* U. S. Department of Defense, U. S. Government Printing Office, Washington, D.C. Price \$2.25.
- Epilepsy.* Manfred Sakel, Philosophical Library, New York, New York. Price \$5.00.
- Fat Consumption and Coronary Disease.* T. L. Cleave, M.R.C.P. (Lond.) Philosophical Library, New York, New York. Price \$2.50.
- Fifty Years of Neurosurgery.* Earnest Sachs, M.D., Vantage Press, Inc., New York, New York. Price \$3.50.
- The Fight for Fluoridation.* Donald R. McNeil, Oxford Press, New York, New York. Price \$5.00.
- Forensic Medicine.* Keith Simpson, M.D., Williams and Wilkins Company, Baltimore, Maryland. Price \$7.00.
- Hormone Production in Endocrine Tumors.* E. W. Wolstenholme and Maeve O'Connor, Little, Brown and Company, Boston, Massachusetts. Price \$9.00.
- How to Live with Diabetes.* Henry Dolger, M.D. and Bernard Seeman, W. W. Norton & Company, New York, New York. Price \$3.50.
- Ideals in Medicine.* Vincent Edmunds, M.D., and C. Gordon Scorer, M.D., Christian Medical Society, New York, New York. Price \$3.00.
- Know Your Doctor.* Paul E. Craig, M.D., New York, New York. Price \$3.50.
- Love, Skill & Mystery.* Theodore Bovet, Doubleday & Company, New York, New York. Price \$3.50.
- Memoirs of a G. P.* Otis Marshall, M.D., Vantage Press, Inc., New York, New York. Price \$3.50.
- Negroes and Medicine.* Dietrich C. Reitzes, Harvard University Press, Cambridge, Massachusetts. Price \$7.00.
- The Neuroses and Their Treatment.* Edward Podolsky, M.D., Philosophical Library, Inc., New York, New York. Price \$10.00.
- New and Nonofficial Drugs.* Evaluated by the AMA Council on Drugs, J. B. Lippincotts Company, Philadelphia, Pennsylvania.
- Physical Diagnosis.* Prior and Silberstein, C. V. Mosby Company, St. Louis Missouri. Price \$7.50.
- A Primer on Common Functional Disorders.* Jack W. Fleming, M.D., Little, Brown & Company, Boston, Massachusetts. Price \$5.00.
- Progress in Peaceful Uses of Atomic Energy.* United States Atomic Energy Commission, U.S. Printing Office, Washington, D.C. Price \$1.25.
- Schizophrenia.* Manfred Sakel, Philosophical Library, New York, New York. Price \$5.00.
- The Sedimentation Rate of Human Erythrocytes.* Frank Wright, M.D., New York Vantage Press, Washington, D.C. Price \$2.50.
- So You Have Glaucoma.* Everett R. Viers, M.D., Grune & Stratton, Inc., New York, New York. Price \$2.75.
- Therapeutic Uses of Adhesive Tape.* Johnson and Johnson, New Brunswick, New Jersey.
- Tumors of the Liver and Intrahepatic Bile Ducts.* Hugh A. Edmondson, M.D., Armed Forces Institute of Pathology, Washington, D.C.
- What We Do Know About Heart Attacks.* John W. Gofman, M.D., G. P. Putnam's Sons, New York, New York. Price \$3.50.
- You Can Increase Your Heart-Power.* Peter J. Steincrohn, M.D., Doubleday & Company, Garden City, New York. Price \$3.95.



# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association March, 1934.

#### CARCINOMA OF THE UPPER COLON IN CHILDHOOD

Roscoe Walker, M.D., John F. Daly, M.D.  
Pawhuska

Carcinoma rarely enters into the differential diagnosis of obscure complaints during the period of childhood and perhaps rightly so. To be sure, the incidence of cancer in persons below the age of fifteen years is so low that reported cases are regarded as oddities. Chajutin states that in 1929 the Committee for Cancer Research had under observation 12,179 cases of cancer but there was no case recorded in a child. In 1914 Redko was able to find but 536 cases of carcinoma during the period of youth in a review of the literature up to that date. 831 cases of cancer reviewed by Janucz revealed only four instances below the age of twenty years. Similarly, Matzen in reporting 8054 cancer cases from Bavaria detected but seventeen cases during the first ten years of life and found but one case of carcinoma. In Odessa, Medwedew saw 1181 cases of cancer in twenty-five years of observation but recorded none below the age of ten years.

The case herewith reported was seen by us and operated by one of us (RW).

The patient was a boy of mixed parentage (Indian-Greek-U. S.), who was five years of age. He was first seen on May 30, 1932. At which time he complained of cramp-like pain in the lower abdomen of two months duration. This pain lasted only a few minutes and recurred at intervals varying from an hour to a day. Examination at that time was negative in every respect except for a slight tenderness in the right lower quadrant of the abdomen. On June 6, 1932, the boy was seen again at which time the pain was recurring at more frequent intervals. He had been nauseated and had vomited on two occasions. He had had an attack of diarrhea lasting but one day. There had been no melenas. The blood and urine were normal, as were the pulse and temperature. The stools were examined for parasites but none were found. At this examination it was thought that a mass could be palpated to the right of the umbilicus. Exploratory operation was advised at this time. On July 1, 1932, the abdomen was opened by a right rectus incision and a hard, irregular tumor was found at the ileo-cecal junction. It was about the size of an

English walnut. The mass folded into the cecum, forming a valve-like obstruction. This was assumed to be the cause of the intermittent pain of which the patient complained. Another tumor about eight inches in circumference was found in the mesentery of the ascending colon. This was deemed to be inoperable and left untouched. The terminal ileum and the cecum were resected to relieve the obstruction and an end-to-side anastomosis done. Following operation the growth increased in size rapidly. Loss of weight and anemia became marked. By August tenth, definite evidences of pulmonary metastasis (right lower lobe) were demonstrable. At the same time the liver was found to be notably enlarged and to extend below the umbilicus where its border could be felt to intersect that of another mass, the latter presumably the primary lesion. The boy failed rapidly in strength but at no time was there any evidence of obstruction. He died of cachexia on August 29, 1932, about five months after the onset of his symptoms. The sections of the tumor removed at operation revealed a well marked adenocarcinoma.

---

#### MISCELLANEOUS ADVERTISEMENTS

FOR SALE: Jones BMR Machine, six years old, used very little. Contact A. M. Brown, Jr., M.D., Perry, Oklahoma.

FOR SALE: 1 Mattern x-ray with fluoroscope and attachments, 100 M.A., excellent condition, regularly serviced by G.E.; 1 Beck Lee ECG, old model; 1 Microscope; 1 Leitz Photo-Electric Colorimeter; 1 Junior Centrifuge, practically new; various laboratory supplies. J. P. Irby, M.D., 819 E. Broadway, Altus.

GOOD OPPORTUNITY FOR YOUNG PHYSICIAN wanting to do general practice. Another physician is needed at once in this prosperous county-seat city of 3,000, with an equally-prosperous farming and ranching area surrounding it. One of the best-equipped, modern small hospitals in the state. Long-term financing available for equipping office and remodeling it to suit the person applying. Will offer every assistance also in finding comfortable housing. Call or write Don Johnson, Secretary-Manager, Pawnee, Oklahoma, Chamber of Commerce.

WANTED: Medical Officer to work twenty hours a week in administering medical certification of airmen. Contact E. J. Anderson, Chief, Personnel Division, Civil Aeronautics Administration, P.O. Box 1689, Ft. Worth, Texas.



# Deaths

O. W. RICE, M.D.  
1871-1959

O. W. Rice, 87-year-old pioneer Oklahoma physician, died in McAlester on February 3, 1959.

A native of Johnson County, Missouri, Doctor Rice graduated from Rush Medical College in 1897. Settling in the Indian Territory in 1898, he began his practice in Alderson, moving to McAlester in 1923, where he continued his practice until retirement in 1956.

In 1949, Doctor Rice was recognized for his years of service to the profession when he was presented with an Honorary Life Membership from the Oklahoma State Medical Association.

CHARLES L. ROGERS, M.D.  
1876-1959

Charles L. Rogers, 82-year-old, retired physician, died January 26, 1959, in Bartlesville.

A pioneer Oklahoma physician, Doctor Rogers was born in McKinney, Texas, on November 3, 1876. He received his medical degree from George Washington University in St. Louis and began his practice in 1910 in Beaver County. He later practiced in Woods and Alfalfa Counties.

Doctor Rogers was a former member of the Oklahoma State Medical Association.

B. T. BITTING, M.D.  
1868-1959

B. T. Bitting, 91-year-old pioneer Enid physician, died on January 26, 1959.

Born in Rural Hill, North Carolina, in 1868, Doctor Bitting received his medical degree in 1895 from the Baltimore Medical College which later became the University of Maryland.

Doctor Bitting came to Enid in 1914 and retired from practice in 1944 after 50 years of continuous practice. He was an Honorary Member of the Oklahoma State Medical Association.

C. P. CHUMLEY, M.D.  
1890-1959

C. P. Chumley, M.D., a resident of Chickasha for the past five years, died on March 1, 1959. A native of Collinsville, Alabama, Doctor Chumley graduated from the University of Oklahoma School of Medicine in 1916.

After twenty years of practice in Duncan, Doctor Chumley served on the staffs of Eastern State Hospital at Vinita and Fort Supply Hospital. Later he was associated with the student health service at the University of Oklahoma and was also city and county health director in Chickasha.

WILLIAM WILBRUN KERLEY, M.D.  
1871-1959

William Wilbrun Kerley, 87-year-old, retired Anadarko physician, died February 28.

A native of Blue Mountain, Arkansas, Doctor Kerley graduated from the University of Arkansas School of Medicine in 1898. He began his practice in Anadarko in 1901, retiring in 1945.

In recognition of his years of service to the profession, Doctor Kerley was presented with an Honorary Membership in the Oklahoma State Medical Association in 1946.

GEORGE A. LAMOTTE, M.D.  
1877-1959

George A. LaMotte, 82 year-old pioneer Oklahoma City physician, died on March 1.

A graduate of Philadelphia's Jefferson Medical College in 1900, Doctor LaMotte began his practice in Oklahoma City the following year, where he remained until his retirement in 1955.

Doctor LaMotte was professor emeritus at the University of Oklahoma School of Medicine. In 1951, he was honored for his years of service to the profession when he was presented a Life Membership in the Oklahoma State Medical Association.

## PHYSICIAN PLACEMENT

### General Practice

Albert Stanley Bailey, Jr., M.D., P.O. Box 1381, Westhampton Beach, L. I., New York, age 28, married, graduated from University of Oklahoma, 1955, presently in military service, will be available May, 1959.

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

John W. Kennard, M.D., 20 Olson Lane, Fort Rucker, Alabama, age 26, married, graduated from Bowman Gray School of Medicine, 1956, presently in military service, will be available September, 1959.

James W. McDoniel, M.D., 13-B Thompson Street, Langley Air Force Base, Virginia, age 27, married, graduated from Oklahoma University School of Medicine, 1956, will be available July 1, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Edwin Ruben Reinschmiedt, Lt., MC, USNR, BOQ, Alameda Naval Air Station, California, age 30, married, graduated from University of Oklahoma, 1956, presently in military service, will be available June 15, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

John D. Wise, M.D., Booneville, Arkansas, age 30, married, graduated from University of Arkansas, 1954, veteran, available immediately.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

### Internal Medicine

Oscar C. Beasley, Jr., M.D., University Hospitals, Iowa City, Iowa, age 31, married, graduated from Vanderbilt University, 1952, veteran, will be available July 1, 1959.

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from

University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

### Locum Tenens

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

### Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

### Obstetrics and Gynecology

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

### Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

### General Surgery

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

### Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.



On the contrary, the problem here in Kabul is *not enough* food!

Fighting hunger in places like Kabul is just one task of the UN's 19 Specialized agencies and international organizations. Elsewhere, UN teams combat floods, wage war against disease, fight illiteracy.

In these practical ways, the UN brings new hope and happiness into the lives of peoples less fortunate than we are—at the same time cuts down the discontent that could easily erupt into another war.

By narrowing this gap in education, health and

# IN KABUL VERY FEW OVEREAT

nutrition between the world's "haves" and "have nots"...as well as providing a forum for political discussion...the UN has become mankind's *last great instrument of peace.*

Be an ambassador of the UN in *your* community. The world's leaders actively support the UN...but *your* good will, understanding and support are the best guarantees of its success. For the informative free pamphlet "The UN in Action," address: United States Committee for the United Nations, Box 1958, Washington 13, D. C.



UNITED STATES COMMITTEE FOR THE UNITED NATIONS, BOX 1958, WASHINGTON 13, D.C.



# Editorials

## **A Statement at the Committee Hearing in the House of Representatives on S.B. 20**

Mr. Chairman and members of the Committee, I represent the Department of Pediatrics, University of Oklahoma School of Medicine, and its advisory committee. As we studied this bill and its relation to us in the department it seemed to us that somebody, who is not afraid of losing his job, ought to represent the children. If I may I would like now to say a word for the children.

It seems to us a strange bit of biologic reasoning on the part of the law makers that a child who is growing and exercising and developing for which he needs the expensive protein foods, milk, eggs, and meat, is allowed less in his grant for food than is an old person who probably should be cautious of excessive protein intake since he is neither growing, developing nor apparently doing much in the way of exercise. Many, many times I have talked to a mother in the Out-patient Department at Children's Hospital about the nutritional status of her poorly-nourished child and been told that all she had to live on was grant money and she could afford milk and meat only occasionally. These children cannot possibly develop their full potential of physical and mental and emotional health on the money allowed them in their grant. The stipulated amount of \$24 for food means nothing when only \$6 is allowed for everything else. We, in pediatrics, know no better way to make an incompetent, inadequate adult than to starve him during his period of growth. What sort of progeny can people like that possibly have? There could be no better scheme devised for perpetuating the assistance rolls.

The strange part of it is that the economic up-grading of the old age pensioner has been what we would consider a relative if not actual down grading of the ADC child. In 1937 OAA received 75% of the assistance funds and today gets 76%. Whereas the ADC program received 17% of the total fund in 1937 and today only 13%. Today a mother and one child receives a maximum of \$110 a month and an old age pensioner and his wife a maximum of \$148.

A mother and four children have in their grant a total of \$14 for clothing, a total of \$9 for household remedies and a total of \$5 for personal items. Five old-age pensioners get \$30 for clothing, \$35 for household remedies and \$45 for personal items. That is roughly two times, four times, and five times as much respectively. Of the Assistance Fund, 76% goes to 100,000 people in the old-age group and 13% to ADC for 44,000 children and 14,000 caretakers. In other

words, less than twice as many people get almost six times as much of the Assistance fund. It isn't that the old people get so much: its that the children get so little.

It is small wonder that these children should look like urchins—and nothing would be more apt to make them behave like urchins than to look like urchins. There is a word used in scientific language to describe the phenomenon of the old eating up the young. The word is infantophagia and it would appear to be almost applicable here, and this at a time when our society is dedicated to the promotion of physical and mental health in its young and to the prevention of juvenile delinquency. And still there are those who have the temerity to come out here and ask you to refuse assistance with sales tax money to medically indigent children for hospital care when it was the clear intent of the people in adopting Article 25 and of the legislature in its first allocation of funds to include this category of assistance in the assistance fund; and this without a shread of evidence that grants for the old age assistance would have to be cut. This is an assistance fund and primary resources have to apply first—so that as more and more people coming on the old age rolls have some social security there is less state money needed to fill the amount of the grant, unless these people should decide they ought to take proper care of their young—and I have a feeling that for the most part, it is actually their young.

Out of a very fine thing that the legislature did in establishing the Assistance Fund for our less fortunate citizens there has been built a Frankenstein which we believe you gentlemen have the courage to contain. You could well begin by assuring an adequate medical care program for medical indigent children by passing this bill which takes that money first before anybody has a chance to get at it to increase the grant in any category.

The problem is a very simple one of solution but in order to solve it the members of the Legislature need to feel the backing of all of us. It is quite obvious that the category of assistance to ADC children and to medically indigent children is not adequate. The Crippled Children's Commission lacks, under its present funds, about \$500,000 of having enough money to pay hospitals for the service they rendered to children who are eligible for inclusion under the Crippled Children's program.

The assistance program for old age re-

cipients is truly an assistance one which means that primary resources must be applied first. The majority of people now coming on the rolls of OAS have some social security. The state can subtract this amount from the recipient's monthly grant. During the period of transition from a pension group, who had little or no social security to one in which most of them do, a surplus of about \$1,000,000 a year will accrue. Should the people of the state have their saving on this applied to insure more adequate assistance where it is needed and take care of other assistance problems that are now being taken care of out of the general revenue fund which can be legitimately added to the assistance program or should the saving be used to further discriminate against the unfortunate in other categories of assistance in favor of the old age pensioner?—*B.H.N.*

### **Blood Dyscrasias and Drugs**

“There are some remedies worse than the disease”—Publius Syrus, Maxim 301

A problem seen by all physicians is the patient who, during the course of therapy, develops pancytopenia or depression of one of the cellular elements of the blood. Often such a patient is receiving several drugs and frequently the disease is one known to produce such adverse reactions. At times the problem is simple—the patient does not require the therapy, and stopping all medications results in a return to normal. One internist attributes his stature as a consultant to his willingness to stop all drugs. Knowledge of which agents can produce these toxic effects is important for the proper management of such patients.

Help with these problems is now available in the information supplied by the Subcommittee on Blood Dyscrasias of the Committee on Research, Council on Drugs, of the American Medical Association.<sup>1</sup> They have collected information which is published in a summary form and distributed to State and County Medical Societies, approved hospitals and medical schools. This summary lists agents whose administration has been asso-

ciated with depression of the hemopoietic system.

The committee properly cautions that judgment must be used in interpreting the material since the fact that a drug appears does not necessarily indicate that it is harmful or that it is the cause of the dyscrasia reported. The summary divides the reports into three groups: (a) reports in which only one drug or chemical substance was listed as the possible etiologic agent, (b) reports in which more than one substance was given—one or more of which is known to cause blood dyscrasias frequently, and (c) reports in which multiple substances were listed as the possible agents none of which is known to cause blood dyscrasias frequently.

A total of 427 cases are included in the most recent summary. Fifty-eight agents are included in the (a) group, i.e., reports in which only one drug or chemical substance was listed as the possible etiologic agent. This group warrants additional consideration. The Big Eight in this group, i.e. the agents listed more frequently and in the order of frequency were chlorpromazine (Thorazine), chloramphenicol (Chloromycetin), promazine HCl (Sparine), 5, 5-diethyl-2-thiobarbituric acid, phenylbutazone (Butazolidin), quinidine, sulfisoxazole (Gantrisin), and propylthiouracil. Pancytopenia was reported with 32 agents; leading this group were chloramphenicol and phenylbutazone. Leukopenia was reported with 27 agents; heading the list for this group were chlorpromazine and promazine HCl. Thrombocytopenia occurred associated with 12 agents; the leaders were quinidine and acetazolamide (Diamox). Anemia occurred with only four agents and only one, salicylazosulpyridine (Salazopyrin), was reported more than once.

This list does not provide information concerning the amount of the various agents prescribed, so that one drug on the list may actually have a lower reaction rate than some other drug if the first agent is used with greater frequency.

Among the interesting agents listed were slippery elm and syrup of wild lettuce. These last appeared in the U. S. Pharmacopeia in



1920<sup>2</sup> and 1910<sup>1</sup> respectively. Neither appear in three current text books on therapeutics.<sup>4,5,6</sup>

Slippery elm was used extensively in medical practice as a demulcent and in baseball as an aid in lubricating the ball to deliver a spitball, a practice outlawed since 1920.<sup>7</sup> Syrup of wild lettuce had considerable vogue as a soporific and cough medicine until it was discovered that the most popular preparation also contained morphine. It is presumed that these drugs were administered by a well-meaning member of the family in some remote hill country.

To return, however, to the main point. Physicians are asked to supply information about patients who demonstrated depression of the hemopoietic system while receiving a drug or drugs.<sup>7</sup> The reports will be summarized by the committee and distributed. The summaries should be filed in the hospital library so that they are readily available since their proper use may be of considerable importance to some patients, or at least may console some perplexed physician who may thereby discover that another physician was also confronted with a similar dilemma.

#### REFERENCES

1. Report; Subcommittee on Blood Dyscrasias, Committee on Research, Council on Drugs, American Medical Association. Vol. 3, No. 1, January 1959.
2. U. S. Pharmacopeia X, 1920.
3. U. S. Pharmacopeia IX, 1910.
4. Conn, Howard F., Editor. Current Therapy. Philadelphia, Pa., W. B. Saunders, 1958.
5. Beckman, Harry. Pharmacology in Clinical Practice. Philadelphia, Pa., W. B. Saunders, 1952.
6. Reh fuss, Martin E., and Price, Alison Howe. A Course in Practical Therapeutics, Second Edition. Baltimore, Md., Williams & Wilkins, 1951.
7. Turkin, Hy, and Thompson, S. C. The Official Encyclopedia of Baseball, Jubilee Edition, New York, A. S. Barnes & Company, 1951.
8. Proper forms may be obtained by writing to the Secretary, Committee on Research, American Medical Association, 535 N. Dearborn, Chicago 10, Illinois.

—J.F.H.

### Service Contracts for Elder Citizens

The annual Blue Shield Professional Relations Conference was held in Chicago at the Drake Hotel on February 9, 10 and 11th. The program represented the most outstanding group of participants ever assembled to address this important meeting. This year the presidents of all State Medical Associations were also invited as a means of informing them of current progress among Blue Shield Plans to implement the recent A.M.A. action calling for the development of special forms of medical care coverage for our senior citizens.

Speakers at this conference included Doctor Louis M. Orr, President-Elect, American Medical Association; Doctor Donald Stubbs, Chairman, Board of Directors, Blue Shield Medical Care Plans; Doctor Leland S. McKittrick, Chairman, Council on Medical Education and Hospitals, American Medical Association; Doctor Carlton E. Wertz, President, Blue Shield Medical Care Plan; and many others. The registration at this meeting numbered 298, of which 180 were doctors.

As President of the Oklahoma State Medical Association, I attended the meeting and was privileged to participate in a study group with Doctors McKittrick, Stubbs, and some fifteen other doctors, where they discussed the problem of providing support for voluntary medical care plans for the aged, in an effort to protect this group from having to surrender another of its precious freedoms to bureaucratic control. As indicated in my "letter" of the last issue, it seems evident that Oklahoma physicians should take a realistic attitude toward this problem and work toward the suitable design of a service type contract for this segment of our population.—E.C.M.



**Address of The Honorable  
Orville L. Freeman, Governor  
Of The State of Minnesota\***

I am indeed happy to have this opportunity to welcome you to Minnesota, and to express on behalf of the people of our state our pride and our pleasure in your holding these meetings here.

At the outset, here in Minnesota I am personally deeply grateful for the help and cooperation that I have received from many leading members of your profession. They have given their time and talents to help in solving many problems. They have given me valuable assistance and advice. And as I welcome those of you who are here from outside our state, may I express heartfelt thanks to those of you who, as citizens of Minnesota, have done so much to advance our program.

We are deeply conscious of the debt of gratitude we owe to the medical profession. As individuals, we depend on you to safeguard and restore the personal health that we find so essential to full enjoyment of all the other satisfactions we seek. And as members of society we are finding that the problems you are professionally trained to solve are more and more entwined with the social problems and ills of today.

I am, therefore, today going to ask your help and cooperation in finding a solution to one of those problems—one for which I, along with many other public officials, feel a grave responsibility. But before launching my discussion of that particular problem I should like to express: first, some ideas regarding the similarity in interest between the field of medicine and the field of government; and, second, my position with regard to the interrelationships that do and should exist between government and medicine in America today.

Government and the medical profession have similar though not identical interests, for they both exist because of concern for people. The medical profession is concerned

primarily with individuals and their health. Government is concerned with how individuals get along in their various relationships with each other. And the trend is that both of these interests are coming closer together.

It seems to be a characteristic of the increasing interdependence of modern life that social and individual problems and ills become increasingly interrelated. A leading physician in Minnesota—for example—was impelled to organize a community effort to provide employment and other services for the aging members of that community because so many of his patients were sick—actually, physically ill—because of worry about retirement and its attendant problems. And in another community in New York where various social services provided constructive occupation for aging citizens, it was found that this group suffered only half the physical ailments normally expected for those of that age.

Countless examples could be cited showing the influence that governmental decisions have on the health problems of individuals of all ages. School programs affect the health of children. Government is called upon not only to guarantee supply of pure water, but in many instances to take steps to prevent the pollution of air. I believe that no one questions the fact that social and political conditions affect individual health, although no doubt there is room for argument as to how great and extensive that effect is.

At the same time, government is increasingly called upon to pay for direct care for individuals. Government now pays the bill for medical care for the medically indigent, an expense that doctors used to carry almost entirely in earlier years—and one that many of them still carry to a very important extent.

One final point should be made in this very brief picture of the interrelationship of medical and governmental problems. The phenomenal progress that medical science has made in recent years has profoundly affected basic problems of government. In no field are the implications more far-reaching than they are in the increased rate of population growth. Must remember that changing and

Delivered at the A.M.A. 12th Clinical Meeting, Dec. 2, 1958, Leamington Hotel, Minneapolis, Minnesota.

what we like to call advancing in our society brings new challenges and problems as well as new gratifications.

The population of the United States is now growing at the rate of 2½ million a year. By 1965, we may be gaining 5 million people per year. Yet today, in the midst of a post-war boom in the birth rate, our rate of 25 births per 1000 people a year is only half what it was in 1800. The population increase is largely the result of the lower death rate that medical science and other modern developments have brought about.

A little later, I will discuss further the significance of this population growth to problems of government. Now I just want to point out that these problems face us today in part because of medicine's great achievements in prolonging human life.

Turning now to the second point—the relationship between government and medicine—it may be appropriate to meet immediately the question I am sure is in your minds—what about socialized medicine? I know that this question has frequently been the subject of your deliberations. It was a question I was asked in my last campaign.

The term “socialized medicine” apparently means different things to different people. A simple answer as to its meaning might be the providing of medical care through some branch of government. Yet that definition is inadequate for our purpose, because we all take it for granted that government should provide medical care in certain cases—as, for example, in tuberculosis and mental hospitals. We in the United States have asked for and have thoroughly accepted this principle for so long that I feel sure that the most ardent opponents of socialized medicine, by whatever definition, would not ask that government cease that function. Perhaps the term really refers only to the government assuming further functions over and above those which it now has. Or does it more specifically refer to action in which the elements of universality and compulsion are present?

This confusion about the meaning of the term “socialized medicine” is most unfor-

tunate. The term in itself often arouses violent and sometimes emotional disagreement—among some who do not agree on what they are disagreeing about. Semantics, the science of words, then becomes almost as important as substance. We can lose sight of real problems and real issues in our confusion about the meaning of words. I often wonder whether a misunderstanding about the meanings of terms does not often create as much conflict and disagreements as is created by an actual difference in opinion and judgment.

It would be tragic to permit such misunderstandings to delay our progress toward meeting real human need. And therefore, despite the difficulties of semantics and the possible danger of being misunderstood, I want to face the issue as I see it in clear and simple terms.

My purpose today is to review with you a serious problem, not to discuss semantics. Let us consider, then, what functions government does perform, and why.

In any discussion of this kind it is important to bear in mind that in the United States we have traditionally decided such questions on a pragmatic basis rather than on the basis of an ideology or an “ism”. We ask, “is it needed?”, and “how can it be done best?” Let me illustrate briefly from history.

When Americans, more than a century ago, decided that education should be universal, free, and compulsory they made this decision without considering any “ism” or asking whether they should adopt socialized education. Government provided schools simply because that was the only possible way they could be made available to all.

When government provided hospital and medical care for the victims of long, expensive, chronic ailments such as tuberculosis and mental illness, it did so for similar reasons. It was socially desirable that the people suffering from such ailments be given care and treatment. Very few could afford such long and expensive care. The people asked government to provide it, because that was the only way it could be made



available.

The same principles hold true, I believe, in all other areas where government performs functions relating to medicine. Government provides a substantial share of the cost of educating doctors because it is socially desirable and necessary. Government carries out those public health functions that could be performed adequately in no other way.

In other words, government is not some outside power constantly seeking to aggrandize itself by taking over more and more functions. (I can assure you that no governor, in the midst of a budget-making process, would want to suggest further functions that would create a bigger budget just for the sake of expanding government itself.) On the contrary, government is a democracy, by the very definition of the term, is the institution through which the people seek to make sure certain needs are met that are not adequately met by other means.

Many western European democracies have adopted universal health care programs with some degree of compulsory participation. Such programs are, I believe, what most of you think of when you use the term "socialized medicine." But we in the United States have greater resources and higher standards of income than any of these nations. And we have gone a long way in the development of voluntary programs using the insurance principle to make it easier for people to pay for their medical care. If these programs meet the needs of the American people adequately, there will be no reason for government to be asked to step in.

Personally, I do not want government to be any bigger than necessary. I do not believe in compulsion except where it is essential to achieve a socially desirable goal. But where an essential goal can be achieved in no other way, under our American democratic system, government has in the past, and will in the future be called upon to take care of urgent, unmet needs.

Our goal in the field of medical care for the American people is one on which I am

sure the medical profession and government are in total agreement. We want to insure the availability to all Americans of medical care of the best quality, and in sufficient quantity to meet their needs. We must cooperate to achieve this goal. We must work it out together.

I want now to present to you one area in which the problems we face in working toward that goal urgently demand a solution. I want to ask your help in developing a program to meet, more adequately and efficiently, the medical care needs of our senior citizens.

Earlier in this discussion I referred to the population explosion that is taking place. Mere growth in numbers, however, does not give the whole picture. The age distribution of this increasing population is of even greater significance to those trying to meet the changing needs of our society.

For the first time in the history of the United States the dependency ratio in our population is increasing. Up until 1940, those age groups in our population that are usually dependent on others, the young and the old, were steadily decreasing in proportion to those in the productive age group. Since that time, the trend has been reversed.

To show specifically what this means—we have tried to analyze the probable population changes expected in Minnesota from 1950 to 1965. As a whole, our population is expected to increase 22% during that 15-year period. But the increase will not be uniform in all age groups. Those under 21 will increase by 38%, and those over 65 by 35%, while the increase in the productive years between 21 and 65 will be only 9%. Thus, proportionately fewer people in the productive—and taxpaying—years will have to provide for greater educational services for increasing numbers of children and youth, and greater social and medical services for increasing numbers of the aging population.

I am told that progress in medical science may soon change this proportion in the direction of even greater numbers of those over sixty-five. During the past half cen-



tury, our life expectancy at birth has increased 23 years, but our life expectancy at age 65 has increased only 2½ years. These figures reflect the great decline in infant mortality and the success in combatting communicable diseases. Now that constantly increasing attention is being given to research on the diseases of adult years, we can expect that more of us will live longer in the years ahead.

Thus, we face the problem of providing medical care for increasing numbers of older people. Government now is expected to provide such care for those who are on Old Age Assistance. In Minnesota we provide all Old Age Assistance recipients with medical care according to their needs, and we are one of the few states that places no ceiling on expenditures for such care. These medical care costs are constantly increasing. And while social security pensions are reducing the numbers of people who need old age assistance for ordinary living expenses, they are not sufficient to cover expenses of serious and chronic illness. Thus, there are increasing numbers of retired men and women who have earned pensions sufficient to meet their needs as long as they stay well, but insufficient to meet their medical care needs. If and when they become ill, those costs become an increased burden on government.

Inflation has aggravated this problem. It is generally recognized that inflation takes its greatest toll from those living on fixed, retirement pensions. It is not so generally recognized that for older persons the rising costs of medical care are proportionately much harder to meet than other rising costs. Surveys show that, while people past the retirement age need and do spend less on such cost-of-living items as food, clothing and shelter—in contrast they need to spend more on medical care. Their need for such care is probably double that of the average for the pre-retirement years. And, during the past few years the costs of medical care have risen substantially faster than other cost-of-living items.

The seriousness of this situation is dramatized by individual illustrations we all know. For example, one Minnesota farmer of 71 years spent the entire annual gross income

from his principal crop—the sale of his sheep—and still had to carry over into the next year a part of the \$2,300 medical and hospital bill that he incurred that year. Such misfortunes can very easily bring about the need for outside help for those who are otherwise economically self-sufficient.

State government must, of course, assume the responsibility for those who need assistance. With Old Age Assistance medical and nursing care payments in Minnesota at the annual rate of eighteen and a half million dollars, and increasing at a rate approaching two million dollars a year, we urgently need a better way to meet this problem. Thus far private, voluntary insurance programs—however rapidly they have grown as a whole—are least effective for the age group over sixty-five. Employee group programs often cease with retirement, and premium costs for individuals of that age are generally too high for them to pay.

It is because of this great need that legislation has been proposed in Washington—and, no doubt, will be proposed again—to expand the federal social security program to include hospital and medical insurance benefits under Old Age and Survivors' Insurance. It was introduced at the last session of Congress in the Forand Bill, which, I believe, you officially and vigorously opposed.

Now, you certainly have the *right* to oppose such legislation if you believe it would be harmful to your profession. You have the *duty* to oppose it if you believe it would be harmful to the public. But if you do oppose it you also have the responsibility of helping to work out an alternative program to meet the need that we all know exists and becomes more serious every day.

A solution is urgently needed. Our costs for medical care for the aging must compete with increasing demands for greater expenditures for education and for mental health, and for scores of other urgent demands. The burden on state government for increasing services is constantly getting heavier in every field. States are assuming a greater proportion of responsibility in non-defense spending—where in 1940 the states

provided 58% and the federal government the other 42%, the states in 1956 were providing 73%. If state governments are going to meet this increased share of constantly growing responsibilities they need sound planning and wholehearted cooperation of all interested groups.

I appeal, then, for your help in cooperating with government to develop a more adequate program for medical care for the aging. All states face this problem, although in Minnesota the problem is more acute than it is in states that set an arbitrary limit on medical care payments. All of our people stand to benefit by a program that would relieve them of worry about insecurity and dependency in old age.

Permit me to summarize the problem as I see it. We all agree on the goal—and on most aspects of the problem. We cannot retreat from our position of providing Old Age Assistance recipients with adequate, highest-quality medical care. We want to make sure that other senior citizens whose incomes are small, yet enough for independence as long as no extraordinary expenses are required, need not become “medical indigents” when they become ill. We want personal dignity as well as health for our later years.

Meanwhile, we know that the numbers of those over sixty-five will increase. We know that thus far voluntary commercial insurance programs have not made available to members of this group, at a moderate cost, the kind of protection they need.

The proposal to include medical and hospital care insurance under OASI benefits does offer one solution. It may not be a complete solution or the best solution. It may not be acceptable to you or to the Congress. But it would offer help to state governments—hard pressed to find ways to meet all the needs for services for which they are responsible.

Difficult as these problems are, I, for one, will never recommend curtailing medical care for our senior citizens. Rather they need better care, and they need other social services which—combined with the best of medical knowledge—will make their lives hap-

pier and more constructive. I believe that, together, government and the medical profession can work out such a program.

Can you help us to find a way to apply the voluntary health insurance principle to elderly and retired people? Can you help us to develop a program, that is within our means, to provide the kind of preventive care and attention that will make the sunset years healthier and happier? Can you help us find ways to make available to all who need it the kind of physical rehabilitation that your scientific progress has already developed?

We need this help and cooperation urgently. The people feel this need, and when they feel it badly enough, they demand that it be met. The people then say, “there ought to be a law.” Yet the best solution is seldom reached in an atmosphere of urgent need or bitter controversy.

I believe that our best course in seeking the right answer is in sincere and wholehearted cooperation involving the medical profession and government as well as the people who need the services. I have had most rewarding experience in cooperating with medical leaders in fields in which we do work together—for example, in improving our program for vocational rehabilitation. I find that cooperation between government and representatives of various professions and specialists in seeking solutions to major current problems is a most effective approach.

It is certain that we must find a solution, without further delay. Certainly a society with the great resources we have in both material goods and scientific talent cannot leave the health and happiness of our senior citizens to chance. Certainly we must do all we can to make most effective use of the public expenditures we make for that purpose. I ask the help of the leaders of the medical profession in working out a program that will most adequately meet the needs of our older citizens for health and services of the highest quality. I know that government in the interest of the people must not—and cannot—avoid that responsibility.



## Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator\*

THE INTERIOR of the human heart, the last anatomic frontier confronting the surgeon, is no longer an area inaccessible to surgical correction of congenital or acquired defects. General hypothermia was first used by Lewis<sup>1</sup> in 1952, to successfully close an atrial septal defect. Gibbon<sup>2</sup> pioneered the application of a mechanical heart and lung apparatus to cardiac surgery and in 1953, he successfully closed an atrial septal defect in an eighteen-year-old girl utilizing total cardio-respiratory bypass.

### Initial Clinical Experiences at the University of Oklahoma Medical Center

The pump\*\* utilized at The University of Minnesota Hospitals in the first 350 operations to temporarily supplant cardiac function has remained essentially unchanged, but methods for extracorporeal blood oxygenation and carbon dioxide removal were evolved with increasing experience and knowledge. The first 45 patients subjected to direct vision intracardiac operation in 1954-1955 were supported by controlled cross circulation.<sup>3</sup> In 1955 extracorporeal oxygenation was obtained in five patients by perfusion from a

GILBERT S. CAMPBELL, M.D.

GLEN G. CAYLER, M.D.

WILLIAM R. RICHARDSON, M.D.

DAVID D. SNYDER, M.D.

G. RAINEY WILLIAMS, M.D.

reservoir of arterialized blood<sup>4</sup> and in 15 patients by a biologic (dog lung) oxygenator.<sup>5</sup> In 1955 the University of Minnesota group introduced a simple disposable bubble oxygenator<sup>6</sup> which provided adequate flow and gaseous exchange. This safe and effective pump oxygenator system has since been utilized in various centers throughout the world. Because of previous experience with this type pump oxygenator, we elected to use this apparatus in our initial clinical cases. The following seven patients represent our initial clinical experience at the Children's Memorial Hospital with correction of congenital cardiac defects utilizing total cardio-pulmonary bypass.

### Case Presentations

*Patient Number One: A.J.A. (Wilburton, Oklahoma).*

*Referring Physician: C. K. Holland, Jr., M.D. (McAlester, Oklahoma).*

This twelve-year-old boy was noted to have a heart murmur in the spring of 1957. There was a history of exertional dyspnea

\*This paper is from Departments of Surgery and Pediatrics of the University of Oklahoma Medical Center.

\*\*Sigmamotor Inc., 3 North Main Street, Middleport, New York.



and decreasing exercise tolerance for the past year. Physical examination revealed a somewhat underdeveloped boy with no evidence of cyanosis. There was a grade three ejection systolic murmur at the upper left sternal border and a fixed, split second sound. There was also a grade three mid-diastolic rumbling murmur maximal at the lower left sternal border. X-ray examination revealed marked increase in cardiac transverse diameter, mainly due to right ventricular enlargement. The main pulmonary artery segment was enlarged and the pulmonary vascular markings were accentuated. The electrocardiogram revealed right axis deviation, incomplete right bundle branch block, and probably right ventricular hypertrophy. In November 1958, he was admitted to Children's Memorial Hospital for cardiac catheterization. This study revealed a large left to right shunt through an atrial septal defect and anomalous pulmonary venous drainage from the right lung. Pulmonary blood flow was approximately four times the systemic blood flow and the right ventricular pressure was slightly elevated. On 1-21-59, the congenital defects were corrected under direct vision utilizing total extracorporeal circulation. The chest was entered through a bilateral anterior thoracotomy in the fourth interspace with a transverse sternotomy at that level. On opening the pericardium, the right atrium was seen to be approximately two and one-half times normal size and the pulmonary artery was much enlarged. After establishing total cardiac bypass the right atrium was opened and the defect in the atrial septum was found to be low and just posterior to the coronary sinus. There was a fair margin of atrial septal wall between the lowermost portion of the defect and the annulus of the atrio-ventricular valves. Both the right superior and right inferior pulmonary veins entered to the right of the atrial defect. The septal defect was closed with interrupted silk sutures and positioned in such a fashion as to divert the right pulmonary venous drainage into the left atrium. His immediate postoperative course was uncomplicated; however, three weeks following operation he developed "post-commissurotomy" syndrome characterized by fever,

arthralgia, anorexia, and tachycardia. He responded to treatment with bedrest and salicylates and was discharged home on 3-21-59.

*Patient Number Two: M. F. (Bristow, Oklahoma).*

*Referring Physician: D. L. McAlister, M.D. (Bristow, Oklahoma).*

This five-year-old boy was first admitted to the Children's Memorial Hospital at the age of ten months because of a loud systolic murmur at the second interspace and frequent upper respiratory infections. Physical examination revealed a well-developed boy with malar flush and redness of the fingertips but no obvious cyanosis. There was a grade four stenotic systolic murmur maximal at the pulmonary area and a diminished pulmonary second sound. X-ray examination revealed slight cardiac enlargement with right ventricular contour. The pulmonary artery segment was prominent, and the pulmonary vasculature diminished. Electrocardiogram showed marked right ventricular hypertrophy and minimal right atrial hypertrophy. He was followed in our congenital heart clinic until 11-7-58, when he was admitted for cardiac catheterization which revealed pure pulmonary valvar stenosis of marked severity with a right ventricular systolic pressure of 160 mm.Hg. On 2-4-59, corrective surgery was performed utilizing cardiac bypass. The heart was exposed through a midline sternotomy incision. The pulmonary artery showed typical post-stenotic dilatation. A harsh thrill was present both over the main pulmonary artery and over the outflow tract of the right ventricle. The pulmonary valve could be palpated through the soft pulmonary artery wall. After establishing total extracorporeal bypass, the main pulmonary artery was opened, revealing a valve orifice measuring 3 mm. in diameter. One of the commissures was partially open but the other two were completely fused. Under direct vision, each of the three commissures was incised out to the valve ring. No infundibular obstruction was present. The incision in the main artery was closed with running arterial silk suture. After completion of the intracardiac procedure, the right ventricular pressure

was measured and found to be only 50 mm. Hg. Postoperatively, the patient did exceptionally well and was discharged from the hospital on 2-26-59.

*Patient Number Three: R.F.T. (Fox, Oklahoma).*

*Referring Physician: C. E. Baker, M.D. (Oklahoma City, Oklahoma).*

This seven-year-old girl was admitted to Children's Memorial Hospital on 2-17-59. A precordial murmur had been noted at the age of one and one-half years and her development had been poor with frequent upper respiratory infections and perioral cyanosis with crying. Physical examination revealed a small girl with no evidence of right to left shunting. There was a grade three stenotic murmur maximal at the pulmonary area and a diminished pulmonary second sound. X-ray examination revealed slight right ventricular enlargement and a prominent main pulmonary artery segment. The electrocardiogram showed right axis deviation and moderate right ventricular hypertrophy. Cardiac catheterization on 2-4-59, showed a right ventricular systolic pressure of 100 mm.Hg. and a mean pulmonary artery pressure of 10 mm.Hg. Angiocardiograms showed pulmonary valvar stenosis with no evidence of a right to left shunt. Corrective surgery was performed on 2-18-59. The pulmonary artery was incised so that the pulmonary valve could be visualized directly. The stenosis was completely relieved by a direct incision of the fused cusps. Following this procedure, right ventricular pressure fell to 25 mm.Hg. The patient's postoperative course was completely uneventful and she was discharged home on 3-12-59.

*Patient Number Four: R.G. (Ardmore, Oklahoma).*

*Referring Physician: R. W. Murphy, M.D. (Ardmore, Oklahoma).*

This 4½-year-old boy had partially compensated congestive heart failure and frequent bouts of severe pneumonitis. He was markedly underdeveloped and very limited in activity. Physical examination revealed a small boy with no evidence of cyanosis.

Physical examination showed moderate hepatosplenomegaly, venous engorgement and tachypnea as evidence of congestive failure. He had a combined hyperdynamic cardiac impulse. There was a grade three systolic ejection murmur at the pulmonary area with a fixed, split second sound. There was also a grade three regurgitation systolic murmur at the apex which transmitted out into the axilla. X-ray examination revealed marked cardiac enlargement with a prominent pulmonary artery segment and pulmonary plethora. The electrocardiogram showed left axis deviation, incomplete right bundle branch block and combined ventricular hypertrophy. Cardiac catheterization on 2-17-59, revealed an atrial septal defect of the low or primum type and evidence of mitral regurgitation, probably due to a cleft mitral valve. On 2-25-59, surgical correction of his defects was carried out on a total cardiac bypass. The heart was exposed through a bilateral transsternal thoracotomy. On opening the pericardium the right atrium was found to be approximately three times normal size. After total extracorporeal bypass was established a right atriotomy was made and a large volume of bright red blood appeared in the operative field. This bleeding was due to regurgitation from the left ventricle through the cleft in the mitral valve and into the right atrium via the atrial defect. To facilitate repair, cardiac arrest was accomplished by cross clamping the ascending aorta. Two defects were then visualized in the atrial septum. One defect was a classical ostium primum type and measured 2 cm. in diameter. The second defect was at the foramen ovale level and measured 1 cm. in diameter. The foramen ovale defect was closed with interrupted silk sutures. The cleft in the anterior leaflet of the mitral valve was exposed and repaired through the primum defect. The primum defect was then closed with interrupted silk sutures which were tied over a strip of compressed polyvinyl sponge. The ascending aortic clamp was then released and normal sinus rhythm returned. Blood samples obtained from the superior vena cava and from the right ventricle after correction of the defects showed no residual left to right shunting. This child's postoperative



course was uneventful until 3-6-59, when he developed a pneumothorax on the right side. He responded to drainage by chest suction and antibiotics and is now ready for discharge.

*Patient Number Five: V.W. (Midwest City, Oklahoma).*

*Referring Physician: V. M. Rutherford, M.D. (Midwest City, Oklahoma).*

This nine-year-old girl was noted to have a heart murmur and anemia on a preschool examination at the age of five years. She showed poor development and had exertional dyspnea and decreased exercise tolerance. Physical examination revealed a poorly developed girl with no cyanosis. There was a combined hyperdynamic cardiac impulse. There was a grade three systolic ejection murmur at the pulmonary area with a fixed, split second sound. There was also a grade three systolic regurgitant murmur at the apex radiating out into the axilla. X-ray examination revealed marked cardiac enlargement with a prominent main pulmonary artery segment and pulmonary plethora. The electrocardiogram showed left axis deviation, incomplete right bundle branch block and combined ventricular hypertrophy. Cardiac catheterization on 2-16-59 revealed a large left to right shunt through a low atrial septal defect. A diagnosis of an ostium primum type atrial septal defect with mitral regurgitation due to a cleft mitral valve was made. On 3-4-59, an open heart operation was performed. The heart was exposed through a bilateral transsternal thoracotomy incision. The heart was markedly enlarged and had a paradoxical beat due to systolic regurgitation of blood from the left ventricle across the atrial septal defect into the right atrium. The aorta was relatively small and the pulmonary artery quite large. Operative correction of the defects was carried out in a fashion similar to that of patient number four. Blood samples from the superior vena cava and right atrium after repair showed no residual left to right shunt. This patient has had an uneventful post-operative course and is now ready for discharge.

*Patient Number Six: P.S. (Oklahoma City, Oklahoma).*

*Referring Physician: C. F. Foster, Jr., M.D. (Oklahoma City, Oklahoma).*

This six-year-old girl was first admitted to Children's Memorial Hospital on 1-25-54, at the age of one year with anascara, precordial murmur, and a hemoglobin of 4 mg.%. She responded to treatment consisting of blood transfusions, anticongestive measures, and antibiotics. A grade four systolic stenotic murmur at the upper left sternal border persisted, however, after correction of her anemia, and a diagnosis of congenital heart disease was made. She was then followed in our congenital heart clinic until 1959, when she was admitted for further cardiac studies. At this time physical examination revealed a well-developed little girl with a malar flush and red fingertips but no evidence of cyanosis. The cardiac murmur was unchanged from previous examinations. The pulmonary second sound was diminished. X-ray examination revealed slight cardiac enlargement with right ventricular contour. The main pulmonary artery segment was not remarkable and the pulmonary vasculature slightly diminished. There was a right aortic arch. On 3-3-59, cardiac catheterization and angiocardiology was performed. These studies revealed a severe infundibular and valvar pulmonary stenosis and a ventricular septal defect. The right ventricular systolic pressure was 110 mm. Hg. There was a very small right to left shunt at the ventricular level. The systemic arterial saturation was 90%. On 3-11-59, open correction of her defects was carried out utilizing the pump oxygenator. The heart was exposed through a mid-sternotomy incision and upon opening the pericardial cavity the aorta was seen to be somewhat anterior and larger than normal. The main pulmonary artery was small, measuring approximately 8 mm. in diameter. The left and right pulmonary arteries, however, were of normal size. After establishing cardiac bypass a right ventricular cardiectomy was made in the outflow tract of the right ventricle. To facilitate correction, cardiac arrest was performed by cross clamping the ascending aorta. The ventricular septal defect was closed with numerous interrupted arterial silk sutures which were tied over a compressed polyvinyl sponge. After closure



of the ventricular defect the clamp on the ascending aorta was released. No left to right shunting at the ventricular defect was noted. Cardiac rhythmicity returned to normal spontaneously. The obstructing infundibular muscle at the level of the crista supraventricularis was then excised. In order to correct the valvar stenosis cardiac arrest was again carried out and the main pulmonary artery incised. The stenotic valve was opened to the wall of the artery along its three commissures. The pulmonary artery incision was then closed with a running arterial suture. The aortic clamp was then released and normal sinus rhythm returned after a brief episode of ventricular fibrillation. Right ventricular systolic pressure after repair was 50 mm Hg. The patient awakened immediately at the end of the procedure and her postoperative convalescence has been totally uneventful.

*Patient Number Seven: S.N. (Talihina, Oklahoma).*

*Referring Physician: D. E. Bendingfield, M.D. (Talihina, Oklahoma).*

This seven-year-old Indian girl was noted to have a heart murmur at the age of one year and had been smaller for her age than any of her six siblings. Physical examination revealed a grade three stenotic systolic murmur maximal at the pulmonary area and a diminished pulmonary second sound. There was no evidence of cyanosis. X-ray examination revealed a heart with right ventricular contour and a normal pulmonary segment. The electrocardiogram showed an indeterminate axis and moderate right ventricular hypertrophy. She was admitted to the Children's Memorial Hospital on 3-8-59, at which time a cardiac catheterization revealed valvar pulmonary stenosis with no evidence of left to right or right to left shunting. The right ventricular pressure was at systemic levels being 100 mm.Hg. On 3-18-59, open correction of the pulmonic valvar stenosis was carried out utilizing the pump oxygenator. The heart was exposed through a midline sternotomy incision. The pulmonary artery was somewhat enlarged but did not show a great deal of post-stenotic dilatation. After establishing total bypass the main pulmonary artery was opened and

the pulmonary valve orifice visualized directly. It was 5 mm. in diameter. In order to minimize blood loss, cardiac arrest was established by aortic cross clamping. The stenotic valve was then opened all the way to the valve ring along its commissures. The surgeon's finger was then introduced into the outflow tract in the right ventricle through the pulmonary valve. No infundibular stenosis was present. In order to be completely sure that there was not an associated small ventricular septal defect, a right ventricular cardiectomy was performed. Excellent visualization of the ventricular septum was obtained and no defect was found. The aortic clamp was released and cardiac rhythmicity spontaneously returned to normal. Right ventricular systolic pressure after correction was only 30 mm/Hg. The patient's postoperative course thus far has been completely uneventful.

## Discussion

We believe our complete lack of mortality and our very low postoperative morbidity rate is unique for a center's initial clinical experience with cardiac bypass. Our success is, in large measure, due to the previous experience of our surgical team with this technique at other centers. The work here has also been greatly facilitated by the close teamwork between the various departments and groups involved, e.g., Surgery, Medicine, Pediatrics, Radiology, Anesthesiology, the Blood Bank, and the Nursing Service. The Blood Bank group under Dr. DeWitt Hunter has provided outstanding assistance in obtaining and providing adequate quantities of very fresh blood for each procedure.

Table One summarizes our experience to date with correction of congenital heart defects by cardiac bypass techniques at the Children's Memorial Hospital. As is listed, all patients have survived their corrective procedures and as near as can be determined clinically, all have been totally corrected. The postoperative morbidity has been practically nil. No patient has had congestive heart failure, and no patient has had any significant pulmonary difficulty in the immediate postoperative period.

Table Two is a summary of our experi-

TABLE I—CLINICAL DATA AND RESULTS (0% Mortality)

Patient	Age— (Yrs.)	Weight (Pounds)	Diagnosis	Surgical Indications	Postoperative Course	Post-correction Data
1	12	76	A.S.D. 2° Anomalous Drainage Rt. P.V.	Progressive Exercise Intolerance. QP/QS = 4/1	"Post-Commissurotomy" Syndrome	S.V.C. 0, Saturation = R.V. 0, Saturation.
2	5	46	P.S.	R.V. Sys. Pressure of 160 mm. Hg. QS unchanged with exercise	Uneventful	R.V. Sys. Pressure 50 mm. Hg.
3	7	41	P.S.	R.V. Sys. Pressure of 100 mm. Hg.	Uneventful	R.V. Sys. Pressure 25 mm. Hg.
4	4½	26	A.S.D. 1° M.R. A.S.D. 2°	Congestive Heart Failure QP/QS = 3/1	Pneumonia Pneumothorax	S.V.C. 0, Saturation = R.V. 0, Saturation
5	9	51	A.S.D. 1° M.R.	Decreased Exercise Tolerance. QP/QS = 4/1	Uneventful	S.V.C. 0, Saturation = R.V. 0, Saturation
6	6	46	P.S. V.S.D.	Sl. Dec. Exer. Tol. R.V. Sys. Pressure of 110 mm. Hg. Small R to L Shunt	Uneventful	S.V.C. 0, Saturation = R.V. 0, Saturation R.V. Sys. Pressure 50 mm. Hg.
7	7	46	P.S.	R.V. Sys. Pressure of 100 mm. Hg.	Uneventful	R. V. Sys. Pressure 30 mm. Hg.

## Index of Abbreviations:

A.S.D. 2°	—Atrial Septal Defect, Secundum Type
A.S.D. 1°	—Atrial Septal Defect, Primum Type
M.R.	—Mitral Regurgitation
P.S.	—Pulmonary Stenosis
P.V.	—Pulmonary Veins
QP	—Pulmonary Blood Flow
QS	—Systemic Blood Flow
R.V.	—Right Ventricle
S.V.C.	—Superior Vena Cava
Sys.	—Systolic
V.S.D.	—Ventricular Septal Defect

ence with perfusion in these seven patients. The average perfusion rate has been 1850 ml/min/m<sup>2</sup>. No postperfusion acidosis has been noted and no significant postoperative arrhythmia or heart block has occurred.

The use of an open technique is mandatory for the repair of atrial septal defects of the primum type (patients 4 and 5) and for ventricular septal defects (patient 6). Partial anomalous pulmonary venous drainage (patient 1) can be corrected by closed methods, but is done with much greater accuracy by the open method. Valvar pulmonary stenosis (patients 2, 3 and 7) can also be done satisfactorily by closed methods,<sup>7</sup> but we think that here also repair under direct vision is superior for most patients. The open technique also has the advantage of allowing the surgeon to deal with

any unexpected complicating lesion such as infundibular stenosis or an associated ventricular septal defect.

Our choice of the cardiac bypass technique for open heart work rather than hypothermia and inflow occlusion, is based on the former technique being more versatile and allowing the surgeon a greater margin of safety if any complication should arise.

Neither techniques for surgical correction or cardiac bypass are static. The present methods are being improved and replaced constantly and certainly optimal methods have not as yet been developed. Currently we are working with a disc-type oxygenator\* in the experimental laboratory at the

\*Purchase of this equipment was made possible by contributions from an interested Oklahoma citizen.

TABLE II—CARDIAC BY-PASS PERFUSION DATA

Patient	B.S.A.*	Total Perfusion Time (Min.)	Total Duration Of Cardiac Arrest	Perfusion Rate (ml./min./m <sup>2</sup> )	Post-Perfusion pH	Post-Perfusion Plasma Hgb. (mgm%)	Comments
1	1.2	16	0	1500	7.31	81	Difficulty with coronary sinus suction.
2	0.8	9½	0	1800	7.46	32	No complications
3	0.8	9	0	1830	7.40	82	No complications
4	0.6	28	16 min.	1830	7.33	77	No complications
5	1.0	23	10 min.	1850	7.50	71	No complications
6	0.8	44	11 min. 19 min.	2000	7.38	75	No complications
7	0.8	17	7 min.	2060 Average 1850 ml/min/m <sup>2</sup>	7.39	52	No complications

\*Body Surface Area in Square Meters.

University of Oklahoma Medical Center. This apparatus lends itself to higher flow volumes and will prove of help for more prolonged periods of perfusion and for obtaining the increased perfusion rates required for larger patients. Techniques for making cardiac bypass safer for small children and infants are also being investigated.

### Summary

The initial experiences with cardiac bypass for surgical correction of congenital heart defects at the University of Oklahoma Medical Center is presented. Corrective procedures have been accomplished in seven patients to date. There has been no operative mortality. Operative morbidity has been limited to one case of "post-commissurotomy" syndrome and one case of postoperative pneumonia and pneumothorax. Both these patients responded to appropriate therapy. Postoperative clinical evaluation shows that none of the seven patients has any significant residual defect.

### REFERENCES

1. Lewis, F. J. and Taufic, M.: Closure of Atrial Septal De-

fects with the Aid of Hypothermia; Experimental Accomplishments and the Report of One Successful Case, *Surgery* 33: 52-59, 1953.

2. Gibbon, J. H., Jr.: Application of a Mechanical Heart and Lung Apparatus to Cardiac Surgery, *Minn. Med.* 37: 171-177, 1954.

3. Lillehei, C. W., Cohen, M., Warden, H. E., and Varco, R. L.: Direct Vision Intracardiac Correction of Congenital Anomalies by Controlled Cross Circulation, *Surgery* 38: 11-27, 1955.

4. Warden, H. E., Read, R. C., DeWall, R. A., Aust, J. B., Cohen, M., Ziegler, N. R., Varco, R. L., and Lillehei, C. W.: Direct Vision Intracardiac Surgery By Means of a Reservoir of "Arterialized Venous" Blood, *J. Thoracic Surg.*, 30: 649-657, 1955.

5. Campbell, G. S., Crisp, N. W. and Brown, E. B., Jr.: Total Cardiac By-Pass in Humans Utilizing a Pump and Heterologous Lung Oxygenator (Dog Lungs), *Surgery* 40: 364-371, 1956.

6. DeWall, R. A., Warden, H. E., Read, R. C., Gott, V. L., Ziegler, N. R., Varco, R. L. and Lillehei, C. W.: A Simple, Expendable, Artificial Oxygenator for Open Heart Surgery, *Surgical Clinics of North America*, 36: 1025-1034, 1956.

7. Silverman, B. K., Nadas, A. S., Wittenborg, M. H., Goodale, W. T. and Gross, R. E.: Pulmonary Stenosis with Intact Ventricular Septum, *Am. J. Med.* 20: 53-64, 1956.

300 N.E. 13th, Oklahoma City, Oklahoma

### ADDENDUM

Since the submission of this report patients 4, 5, 6 and 7 have been discharged from the hospital. In addition three more patients have undergone cardiopulmonary by-pass and successful corrective surgery for (1) atrial septal defect with anomalous right pulmonary veins, (2) Tetralogy of Fallot and (3) infundibular pulmonic stenosis.



# Myxoedematous Goiter Associated with Thiocyanate Intoxication \*

*Omer L. Eubanks, M.D.:* I should like to present to you a 53 year old married half-Indian and half-white male common laborer whose chief complaint was weakness of five weeks duration.

*Present Illness:* The patient was well until November, 1956, when he noted the onset of dizziness. He was told by his local doctor that he had hypertension and was treated with a liquid medication which we discovered was nitrocyanoate. This contains 960 mgs. of sodium thiocyanate per ounce and 480 mgs. of potassium thiocyanate per ounce. He took this medication intermittently at first and then regularly for the six months prior to admission. He noted the onset of dyspnea on exertion and pedal edema in March of 1957, and suffered a cerebral vascular accident the following month. He had a right hemiplegia and facial weakness with dysphonia. This cleared in months with some residual weakness of the right arm and difficulty in speech. There was little change in his condition until five weeks prior to admission at the University of Oklahoma Hospitals when he became so weak and lethargic that he had to go to bed. He remained there with his symptoms progressing to the point of extreme lethargy and confusion. His wife

**Jack D. Welsh, M.D., Editor,**  
Chief Resident, Department of Medicine, University of Oklahoma Medical Center

**Omer L. Eubanks, M.D., Discussant,**  
Intern, University of Oklahoma Medical Center

**Henry H. Turner, M.D., Discussant,**  
Clinical Professor of Medicine, University of Oklahoma Medical Center

**William E. Jacques, M.D., Discussant,**  
Professor of Pathology, University of Oklahoma Medical Center

**Philip C. Johnson, M.D., Discussant,**  
Associate Professor of Medicine, University of Oklahoma Medical Center

**Keith A. Klopfenstein, M.D., Discussant,**  
Medical Resident, University of Oklahoma Medical Center

and daughter noticed that he had a swelling on the right side of his neck below the angle of the mandible. This swelling was first intermittent, then constant and rapidly progressive. The enlargement finally spread to the anterior and left side of his neck. They also noted that he had bilateral peri-orbital edema. He denied signs of tracheal or esophageal compression, paroxysmal nocturnal dyspnea, or orthopnea. His family has noted that the patient perspired only slightly, was intolerant to cold, that he was drowsy and that his memory had decreased over the last

\*Presented at the University of Oklahoma Hospital.

two years. His weight had decreased from 180 to 155 pounds and his auditory acuity had also diminished.

*Past History:* The patient's past history was essentially non-contributory.

*Family History:* There was no family history of thyroid, renal or cardiovascular disease.

*Systems Review:* The patient had noted a loss of libido during the last two years.

*Physical Examination:* Blood pressure, 120/86. Pulse, respirations, and temperature were normal. The patient appeared older than his stated age of 53 and seemed chronically ill. He was unkempt and his voice was deep and croaky. His speech was slow and hesitant. He was slightly obese, lethargic and quite pale. The skin was very dry and scaly. Axillary and chest hair was scant and the hair of the head was dry and coarse. There was also noted thinning over the lateral eyebrow region. His face was rounded and puffy with edema of the right side of the face. The lymph nodes were not remarkable. There was a marked diffuse hard enlargement of both lobes and isthmus of the thyroid. The right lobe was much larger than the left. One could not define the lower border at the sternal notch. The neck veins showed little distention, however, there were small dilated vessels in the skin overlying the gland. There was no bruit heard over the thyroid. Examination of the eyes showed only moderate atherosclerotic changes of the vessels of the fundus. The patient had decreased hearing bilaterally and carious teeth. The chest had an increased AP diameter with fair expansion. The lungs were clear to percussion and auscultation. Heart sounds were distant. The liver was palpable 3 cm. below the right costal margin. Genital and rectal examination was not remarkable. The patient was lethargic with a poor memory and slow mentation. Orientation was poor. His speech was slow, slurred and hoarse. His general knowledge was decreased and he could not do abstract thinking or understand parables. There was a right facial weakness and decreased hearing bilaterally. The uvula lifted to the left. There was generalized muscle

weakness which was more marked on the right. There was some atrophy and spasticity of the right arm with a positive Hoffman reflex and hyperactive deep tendon reflexes. The right leg was slightly spastic with hyperactive deep tendon reflexes and a positive Babinski. All deep tendon reflexes showed slow return.

*Admission Laboratory Data:* Hemoglobin 7.5 gms. %, Hct. 21%, and 2.45 million red blood cells per cu. mm. White blood count was 4,450 per cu. mm. with 56% lymphocytes. Urinalysis showed a specific gravity of 1.020 and was unremarkable except for an occasional white blood cell. B.S.P. retention was 20% in 45 minutes, cholesterol was 383 mg. % with 172 mg. % esters. Serum calcium, 8.4 mg. % and phosphorus 2.7 mg. %, Van den Bergh, 0.6 mg. %, blood V.D.R.L., negative, total serum protein 6.5 gm. % with 4.4 gms. % albumin and 2.1 gm. % globulin. Blood urea nitrogen, alkaline phosphatase, fasting blood sugar, serum electrolytes, thymol turbidity, platelet count, bleeding, clotting and prothrombin times were all normal. An electrocardiogram showed normal QRS voltage and late inversion of the T waves. X-rays of the chest and abdomen showed no abnormality.

*Hospital Course:* The pertinent laboratory data during the hospitalization is given in the Table. Chronic thyroiditis or carcinoma of the thyroid was considered likely. A Vim Biegeleisen needle biopsy of the thyroid was obtained. The microscopic findings will be discussed later by Dr. Jaques. However, the impression was chronic thyroiditis. An aspiration biopsy of the bone marrow was done and it revealed a hypercellular marrow with erythroid hyperplasia. The red cells on peripheral smear were normochromic and showed some spherocytosis, polychromasia, and stippling. Blood thiocyanate concentration during the second week was 14.8 mg. %.

His hemoglobin slowly rose, the reticulocyte count remained high, serum cholesterol decreased, and the protein bound iodine remained low (Table). The patient was given no medications. By the end of the second week he was more alert and his speech was less slurred. There was no change in the

TABLE  
LABORATORY DATA DURING HOSPITAL COURSE

Hosp. Week	1st	2nd	3rd	4th	5th	6th	16th*
Hbg. Gms. %	7.5	8.00		8.9	9.1	9.7	14.1
Hct. %	21	22		28	29	30	46
RBC—Million	2.45			3.45			4.86
Retic %	5.6		10.2	6.9	8.8	3.7	2.2
PBI Mcg.%	1.2		1.8	2.3	2.9	5.1	6.9
Thiocyanate Mg. %		14.8		5.9		0.8	
Cholesterol Mg. %	383	321	281	290	226	194	200
RAI %	19		65.5				65
BSP %	20			11			7
Coombs'	Neg.		Neg.				Neg.
Stools Occult Blood	Neg.	Neg.	Neg.	Neg.			Neg.
Blood Pressure	120/86	120/85	130/90	135/90	140/95	144/100	240/160

\*The patient was readmitted for follow-up studies and these values are included for completeness.

size or consistency of his thyroid until the fifth week when the gland was found to be smaller and softer. At this time, the patient was voluntarily getting out of bed, talking freely, joking and taking care of his appearance. It had not been possible to obtain 24 hour urine or stool collections until the fifth week of the patient's hospitalization because of his confusion and forgetfulness. Two 24 hour urine collections for calcium obtained during the fifth week showed 10.2 mg. % (volume 725 cc.) and 7.4 mg. % (volume 750 cc.). Fecal urobilinogen obtained during the sixth week was 161.8 mg./day. His hemoglobin had risen to 9.7 gms., reticulocyte count was 3.7% and the PBI was 5.1 mgm. %. Serum cholesterol was 194 mg. % and blood thiocyanate level was 0.8 mg. %.

*Henry H. Turner, M.D.:* This is a very classical case of thiocyanate goiter with myxedema. The histology of the biopsy sections is quite similar to that seen in the thyroid following administration of other goitrogens. Thiocyanate inhibits the trapping of iodine by the thyroid with resulting hyperplasia. Upon removal of the inhibitor, the iodine uptake is increased, normal thyroid synthesis is restored, and the gland

usually regresses to normal size. The process may be accelerated by the administration of thyroid hormone. Occasionally in goiters of long standing involution may not be complete and different morphologic alterations in the histology may be seen. In one of our patients with "iodide goiter" and which did not completely reduce in size following cessation of iodide therapy for asthma and administration of thyroid hormone, the histologic picture was that of chronic thyroiditis of the Hashimoto type. This patient's gland is rapidly regressing in size. It is firm but not hard and at present his progress is satisfactory.

*Q.* Is there any chance of his going over into the hyper state?

*Doctor Turner:* No. I see no reason for his becoming hyperthyroid.

*William E. Jaques, M.D.:* Examination of the needle biopsy showed thyroid and muscle tissue. The thyroid was characterized by acini lined by tall cuboidal to columnar type epithelium and by an occasional papillary excrescence. The colloid in the follicles was moderate in amount and possessed a pale



eosinophilic tinctorial quality. The interstitial tissue contained moderate amounts of chronic inflammatory cell infiltration with lymphocytes predominating. The picture is consistent with that previously described in thiocyanate goiter. Indeed, hyperplasia is the general histological picture noted when thiocyanate or, more recently, thiouracil or propothiouracil are used clinically. In these goiters, hyperplasia may be so marked that it may be mistaken for actual neoplasia. It has been stated that one well recognized pathologist had made an unequivocal diagnosis of papillary carcinoma of the thyroid gland in the first thiouracil treated thyroid that he examined. Thiocyanate goiter can be distinguished from the more common propylthiouracil goiter by the presence of more abundant but paler staining colloid.<sup>1</sup>

*Philip C. Johnson, M.D.:* Physiologically, the thyroid gland has as its function, the removing of iodides from the serum and converting them into metabolically active compounds. These compounds are then either stored or released into the serum according to the needs of other tissues. Thiocyanate goiter is a result of a temporary disruption of the first of these metabolic steps.

The thyroid gland traps iodide in concentrations approximately 25 times those found in the serum. Little is known of the biochemical steps involved in this iodide trapping mechanism. However, it is known that it requires the expenditure of energy derived from aerobic cellular metabolism.<sup>2</sup> The administration of adenosine has been shown to increase the iodide trap. Thyroid stimulating hormone (TSH) probably has no direct effect on the iodide trap since the administration of TSH lowers intrathyroidal iodine at the same time that it increased the serum protein bound iodine.<sup>3</sup>

On the other hand, many substances block or reduce the iodide trap. These include in order of potency, perchlorate, chlorate, hypochlorite, periodate, iodate, bi-iodate, and nitrates.<sup>4</sup> Serum concentrations of potassium thiocyanate from 4.7 to 17 mg. % were reported to be present in patients with myxedema due to a thiocyanate goiter.<sup>5</sup> This compares well with the value of 14.8 mg. %

obtained in our patient.

Since thiocyanate blocks the trapping of iodide by the thyroid gland, we would expect the usual thyroid function tests to show, to a variable extent, decreased iodine I-131 uptake, serum protein bound iodine, and basal metabolic rates. At the same time the serum cholesterol should increase with the appearance of myxedema. This results in a relative deficiency of circulating thyroid hormone which in turn increases TSH production by the pituitary. Since the gland is now unable to trap iodide, it is unable to respond to TSH production by increasing thyroid hormone production. However, it is able to respond to this increase in serum levels of TSH by hyperplasia and production of a goiter which is deficient in stored colloid. This occurs in approximately 20% of patients treated with this drug. The simultaneous administration of thyroid in physiological doses will prevent the goiter formation since TSH production will be inhibited. Iodide administration, on the other hand, will also prevent goiters by overcoming the thiocyanate blockage directly.

Following the cessation of thiocyanate administration the blockage of the thyroid ceases. This results in a high iodine I-131 uptake for a variable period followed by a gradual increase in the serum protein bound iodine to normal. Excessive TSH production is halted, with the return to a euthyroid state following which the thyroid gland gradually shrinks to normal size. Iodine I-131 usually returns to normal at 2½ to six months.<sup>5</sup>

Since thiocyanate effectively blocks the iodide uptake, this drug is often used as a diagnostic and research tool. The administration of 1-2 gms. of thiocyanate orally will cause the thyroid gland to empty itself of almost all of its inorganic iodide. Thus, we have a convenient way to separate defects in trapping of iodide from defects in the steps in the production of thyroid hormones.<sup>6</sup> During the first two hours after iodide is absorbed into the thyroid gland, it remains as inorganic iodide which can be discharged by thiocyanate administration. If the iodide can be discharged by thiocyanate two or more hours after administration of a tracer dose, we can assume that a defect exists in

the conversion of iodide to organic compounds and not in the iodine trapping mechanism. This situation is seen in some goitrous cretins and in thyroid glands under treatment with thiouracil.<sup>6</sup>

In addition to a goiter and hypothyroidism, this patient has at least one other complication of thiocyanate therapy. The elevated reticulocyte count associated with anemia, and an active marrow shows that hemolysis played a significant role in the production of his anemia. That this is a complication of therapy, is suggested by the negative Coombs' and his continued increase in red blood cell count after stopping the drug.

*Keith A. Klopfenstein, M.D.:* Thiocyanates have received considerable attention through the years because of their wide range of pharmacological action. It was first noted by Pauli, in 1903, that they would lower blood pressure and they have been used intermittently for this purpose since that time.

Their toxic properties were recognized early, thus they were not widely used until popularized by Westphal, in 1925. They were effective in lowering blood pressure in many patients and seem to be particularly efficacious in combatting hypertensive headaches, relieving them at times without lowering blood pressure after other measures had failed.

Thiocyanates enjoyed rather widespread use in the 1930's and 40's and are used more today than is generally appreciated. As late as 1952, 14,000 pounds of thiocyanates were prescribed in the United States as medicine; and they are used more extensively abroad.<sup>7</sup>

Thiocyanates occur in a wide variety of plants in nature, particularly in the brassica family of plants, which includes cabbage and cauliflower. They also occur in appreciable quantities in soy bean flour. Chesney, in 1928, noted that rabbits fed on cabbage developed hyperplastic goiters, and Suk, in 1931, associated cabbage ingestion with goiter formation in humans.

Therapeutic blood levels for hypertension are said to lie between 8 and 12 mg. % with

toxic concentration generally considered to be in the range of 14 mg. % or above. The toxicity is not necessarily related to the blood level and many instances of severe toxic manifestations have been reported with blood concentrations below 10 mg. %. There was one case of fatal toxicity which was said to have had blood concentrations of only 3.3 mg. %.

The excretion of thiocyanates varies by as much as 600 to 800% among individuals, therefore, blood concentrations must be followed closely when it is used therapeutically. The therapeutic dose ranges from 60 to 720 mg. per day. Toxic manifestations are quite numerous; one of the most noteworthy being its action on the thyroid. Beamish and others have shown that the effect on blood pressure is not secondary to hypothyroidism, as thiocyanate is effective if patients are maintained on iodine or thyroid hormone while under therapy.<sup>8</sup> The glands in thiocyanate goiter are typically hyperplastic, but exhaustion atrophy has been reported by McGavack and others with prolonged thiocyanate therapy.<sup>9</sup> Thyroiditis has also been reported in association with thiocyanate therapy, with fever and acute enlargement of the gland. Less acute, prolonged tenderness and swelling of the gland has also been reported.<sup>10</sup> Involution of the gland may take months and the prior condition of the gland is rarely attained on withdrawal of thiocyanates. Thyrotoxicosis may occur when sufficient amounts of iodide are given to overcome thiocyanate block. Thyrotoxicosis is commonly seen in rabbits withdrawn from thiocyanate and they also may develop exophthalmus. In man, exophthalmus has also been reported in association with thiocyanate goiter.

Central nervous system disturbances are common as manifestations of thiocyanate intoxication. They include lethargy, depression, psychosis with hallucinations, nervousness, irritability and a decrease in mental acuity, hearing and vision. These symptoms are probably due, in part, to the hypothyroid state, but may also be secondary to a direct action of thiocyanate on the central nervous system. It has been shown that thiocyanate can be converted to cyanide in the erythro-



cytes and a significantly toxic concentration of cyanide in the blood has been observed with the therapeutic use of thiocyanate.<sup>11,12</sup> Cyanide produces histotoxic anoxia by interfering with the cytochromoxidase. This may account for some of the effects of thiocyanate.

There are several reports of hemiplegia occurring in patients with a high blood concentration of thiocyanate. It has been felt that these were probably associated with hypotensive episodes. Gastrointestinal disturbances are also common, with nausea, vomiting and diarrhea frequently seen. Thiocyanate causes a decrease in gastric secretion, both in volume and in acid content, which is said to be resistant to histamine stimulation. Various types of dermatitis have been noted; the usual one being a papular rash quite similar to that seen with sensitivity to bromides. Exfoliative dermatitis has been reported in patients under thiocyanate therapy. Osteoporosis also occurs associated with an increased urinary excretion of calcium.

Thiocyanates have been thought by some to decrease adrenal function. Healy described three patients in 1931, who developed mucosal and skin pigmentations with shock and coma quite similar to that seen in adrenal crisis. It has also been reported that there is a decrease in adrenal lipid content in post mortem specimens following thiocyanate therapy. Sheps and Beamish, in 1956, measured adrenal function in a series of patients on thiocyanate therapy and could find no measurable decrease in adrenal functions.<sup>13</sup>

Anemia, which may be quite severe, is a common complication of thiocyanate therapy, but has received very little attention in the literature. Beichert and Jorke, in Germany, gave high doses of thiocyanates to dogs over a prolonged period and found that they developed normochromic, normocytic anemia.<sup>14</sup> This anemia was believed to be due to an erythrostatic effect with an arrest in the bone marrow at the level of the basophilic normoblast. They also noted groups of cells in the bone marrow that resembled

the megaloblasts seen in pernicious anemia. The anemia in dogs was associated with a low reticulocyte count, normal red blood cell fragility, a normal serum iron, and a serum bilirubin. These same workers have also reported the use of potassium thiocyanate in the therapy of primary polycythemia with successful remissions associated with a fall in hemoglobin and hematocrit to normal levels.<sup>15</sup> This fall is also associated with a decrease in reticulocyte count and decreased erythroid activity in the bone marrow. In their patients, the urine urobilinogen and the indirect-acting fraction of the Van den Bergh reaction were noted to be elevated. It was their impression that there was probably a hemolytic component associated with the fall in hemoglobin as well as a bone marrow depression.

## REFERENCES

1. Rawson, R. W., Hertz, S. and Means, J. H.: Thiocyanate goiter in man, *Ann. of Int. Med.* 19: 829, 1943.
2. Freinkel, N. and Ingbar, S. H.: The relationship between metabolic activity and iodide concentrating capacity of surviving thyroid slices, *J. Clin. Endocrinol. & Met.* 15: 442, 1955.
3. Botkin, A. L., Eskelson, H. E., Firsheim, H. E. and Jensen, H.: In vitro studies of the intact thyroid gland, *J. Clin. Endocrinol. & Met.* 14: 1219, 1954.
4. Wyngaarden, J. B., Wright, B. M. and Ways, P.: The effect of certain anions upon the accumulation and retention of iodide by the thyroid gland, *Endocrinology*, 50: 537, 1952.
5. Blackburn, C. M., Keating, F. R. and Haines, S. F.: Radioiodine tracer studies in thiocyanate myxedema, *J. Clin. Endocrinol. & Met.* 11: 1503, 1951.
6. Starrbury, J. B. and Hedge, A. N.: A study of a family of goitrous cretins, *J. Clin. Endocrinol. & Met.* 10: 1471, 1950.
7. Danzig, L. E.: The dynamics of thiocyanate dialysis: the artificial kidney in therapy of thiocyanate intoxication, *New England J. Med.*, 272: 49, 1955.
8. Beamish, R. E., Perry, W. F., Storrie, M. B.: Observations on thyroid function in hypertensive patients treated with potassium thiocyanate, *Am. Heart J.* 48: 433, 1954.
9. McGavack, T. H.: *The Thyroid*, St. Louis, Mo., C. V. Mosby and Co., 1951.
10. Fahlund, G. E. R.: Painful enlargement of the thyroid gland, a manifestation of sensitivity to thiocyanate, *Proc. Staff Meet. Mayo Clin.*, 17: 289, 1942.
11. Goldstein, F. and Rieders, F.: The formation of cyanide in dogs and man following administration of thiocyanate, *Am. J. Physiol.* 167: 47, 1951.
12. Goldstein, F. and Rieders, F.: The conversion of thiocyanate to cyanide by an erythrocyte enzyme, *Am. J. Physiol.* 173: 287, 1953.
13. Sheps, S. G., Beamish, R. E. and Perry, W. F.: Observations on adrenal cortical function in hypertensive patients treated with potassium thiocyanate, *J. Lab. & Clin. Med.* 48: 708, 1956.
14. Beichert, A. and Jorke, D.: The erythrostatic effect of thiocyanate: a preliminary report, *Klin. Wchnschr.* 31: 11, 1953.
15. Jorke, D. and Beichert, A.: Experimentelle untersuchungen uber die wirkung des thiocyanats (Rhodanid) auf des blutbildung des hundes, *Folia haemat.* 73: 38, 1955.

800 N.E. 13th, Oklahoma City, Oklahoma





# Problem of Massive Upper GI Hemorrhage With Emphasis on Peptic Ulcer

**M**ASSIVE upper gastrointestinal hemorrhage from peptic ulcer disease is a very serious, and often fatal, disease. To date, there is still no ideal method of treatment. For this reason the hospital records of patients with this disease were reviewed for the ten year period from 1948 through 1957.

During this period there were ninety-four patients admitted to the University of Oklahoma Hospital who were diagnosed as having massive upper gastrointestinal hemorrhage. Only patients who met specific criteria, as shown in Table I, were considered as massive bleeders.

The source of the hemorrhage is recorded

This paper is from the Department of Surgery, University of Oklahoma Medical Center, Oklahoma City, Oklahoma and was presented at the Fourth Interne-Resident day, May 23, 1958, sponsored by the Office of Post Graduate Education of the University of Oklahoma Medical Center. It was selected as a prize winning essay by the Oklahoma Chapter of the American College of Surgeons, and presented at the Sequoyah meeting, September 6, 1958.

**FRANK H. HOWARD, JR., M.D.**

A 1956 graduate of the University of Oklahoma School of Medicine, Frank H. Howard, Jr., M.D., is now serving a residency in General Surgery at the University of Oklahoma Medical Center. He is a member of Phi Beta Kappa and Alpha Omega Alpha.

in Table II. Patients with terminal leukemia and uremia were specifically omitted. The results in this Table are similar to those reported by others.<sup>1</sup>

Of the ninety-four patients in this group, sixty patients were bleeding from peptic ulcer disease. Their treatment followed one of three methods: 1. medical therapy alone, 2. medical therapy followed by elective gastric resection during the same hospital admission, or 3. emergency operation. Twenty-

TABLE I

Criteria of Massive Upper Gastrointestinal Hemorrhage	
1. Admission hemoglobin of 7 gms. % or less	
2. 3,000,000 RBC's or less	
3. In clinical shock	
4. Require 2,500 cc. blood or more during the hospital stay.	

three patients were treated with medical therapy alone with a mortality of 21.8% (Table III). Another twenty-three patients initially were treated medically followed by elective gastric resection with a mortality of 13.0%. Thirteen patients had emergency gastric resections with 23.1% mortality. The last patient in the group was not included in any of the above categories because he expired soon after admission before any form of therapy could be administered.

Fifty patients in the group with peptic ulcer disease were bleeding from a duodenal ulcer. Nineteen of these patients were treated medically with a mortality of 5.3%. Twenty patients were treated medically followed by elective surgery with 10% mortality. Ten patients had emergency operation with 20% mortality. The over-all mortality of this group was 12% (See Table IV).

TABLE II

Etiology of Massive Upper G.I. Bleeding From 1948 to 1957		
Etiology	Total Number	Percent of Total
Peptic ulcer:		
Duodenal ulcer	50	53.2%
Gastric ulcer	9	9.6%
Stomal ulcer	1	1.0%
Unknown	15	15.9%
Esophageal varices from cirrhosis	12	12.8%
Carcinoma of stomach	1	1.0%
Lymphosarcoma of stomach	1	1.0%
Rupture of aneurysm of hepatic artery into roux-y limb of choledochojejunostomy	1	1.0%
Hypertrophic gastritis	1	1.0%
Post-infectious mononucleosis hepatitis	1	1.0%
Banti's syndrome esophageal varices	2	2.1%
TOTAL	94	100.0%

TABLE III

Therapy of Patients Bleeding From Peptic Ulcer Disease From 1948 through 1957.			
Therapy	Number of Patients	Number of Deaths	Mortality Percentage
Medical alone	23	5	21.8
Medical followed by elective operation	23	3	13.0
Emergency operation	13	3	23.1
Patient expired before any therapy	1	1	—
TOTAL	60	12	20.0

There were nine patients in this group with peptic ulcer disease who had gastric lesions, four of whom were treated medically and died. Three patients were treated medically followed by elective gastric resection with one death, and two had emergency gastric resections with one death. The over-all mortality was 66.6% (See Table V).

### Discussion

Upper gastrointestinal hemorrhage may occur anywhere from the ligament of Treitz to the oral cavity. The most common sites are in the first part of the duodenum, the stomach and the lower one-third of the esophagus. The symptoms presented by these patients were: hematemesis, melena, shock, or any combination of the three.

TABLE IV

Therapy of Patients Bleeding From Duodenal Ulcers From 1948 through 1957			
Therapy	Number of Patients	Number of Deaths	Mortality Percentage
Medical alone	19	1	5.3
Medical followed by elective operation	20	2	10.0
Emergency operation	10	2	20.0
Patient expired before any therapy	1	1	—
TOTAL	50	6	12.0

The diagnosis of upper gastrointestinal hemorrhage may be made in several ways. If a patient has a history of vomiting blood, it is almost certain the hemorrhage is from the upper gastrointestinal tract. If a patient presents with a history of melena or passage of red blood per rectum, it is im-

TABLE V

Therapy of Patients Bleeding From Peptic Gastric Ulcers From 1948 through 1957.			
Therapy	Number of Patients	Number of Deaths	Mortality Percentage
Medical alone	4	4	100.0
Medical followed by elective operation	3	1	33.3
Emergency operation	2	1	20.0
TOTAL	9	6	66.6

possible to diagnose bleeding from the upper gastrointestinal tract without additional information. If a tube can be introduced into the stomach and blood aspirated, or if a string is swallowed and returns stained with blood, there is strong evidence to support the diagnosis of upper gastrointestinal bleeding provided the bleeding has not been stimulated in the nasopharynx by passage of the tube or string. If a patient has melena or bleeding per rectum, a tentative diagnosis of upper gastrointestinal hemorrhage can be made only if a disease known to cause upper gastrointestinal bleeding is evident.

It is of utmost importance to be able to determine the exact cause and source of gastrointestinal hemorrhage for this may determine the type of therapy to be administered. A careful history and physical examination will frequently differentiate between peptic ulcer disease and esophageal varices. In every case an appropriate hematologic survey should be made to rule out bleeding due to a blood dyscrasia. Upper gastrointestinal examination with contrast media is an important aid and in some hands has an 80% accuracy in demonstrating esophageal varices or peptic ulcer.

TABLE VI

Etiology of Hemorrhage in Patients with Cirrhosis and Massive Upper G.I. Hemorrhage. (3)	
Etiology	Percentage of Total
Esophageal varices	59.2
Gastric varices	2.6
Peptic Ulcers	18.4
Gastric Erosions	5.3
Hiatus Hernia	1.3
Undetermined	3.9
No Cause Found	9.2

Bromsulphalein retention studies are of considerable value in establishing whether or not the patient has cirrhosis of the liver with esophageal varices. Fifteen per cent bromsulphalein retention, or greater, is considered by some<sup>2</sup> to be the dividing line between patients with cirrhosis and those without. This figure, unfortunately, is not completely reliable. It should be stated, however, that a patient with proven cirrhosis and massive gastrointestinal bleeding is not necessarily bleeding from esophageal varices. Fainer and Halstead<sup>3</sup> reviewed seventy-six case histories of patients with Laennec's cirrhosis and massive upper gastrointestinal hemorrhage and found various causes for the hemorrhage as indicated in Table VI.

The treatment of patients with massive upper gastrointestinal hemorrhage from peptic ulcer disease falls into three main categories, as previously mentioned: medical management only, medical management followed by elective gastric resection, and emergency operation. Some<sup>4,5</sup> advocate one or the other of the above three categories of treatment to the exclusion of the others. They maintain that all patients should be treated similarly. It is not the purpose of this paper to state what is the best form of management for these patients. However, in our opinion, it is unrealistic to employ only one form of management. There were several patients in this series who were bleeding from an ulcer that had eroded into the wall of a large artery who might have died had they been treated by medical management alone. On the other hand, some patients will stop bleeding under medical management alone and, accordingly, need not be subjected to the risk of an emergency laparotomy and gastric resection. One look at the mortality rates of massive upper gastrointestinal hemorrhage by any form of therapy indicates there is no perfect way to manage this problem. Each patient should be evaluated individually. If surgical treatment is selected as the method of treatment, certain facts should be considered. An elective operation carries a considerably lower mortality rate than an emergency one—13% as compared with 23.1% respectively in this institution. For this reason, it behooves one to try to control the hemorrhage



TABLE VII

## Criteria for Emergency Operation (6)

1. Rapid exsanguinating hemorrhage.
2. Any patient who continues to bleed for more than 48 hours while receiving medical management.
3. Any patient in whom a stable hematocrit can't be maintained by 500 ml. of blood per 8 hours.
4. Any patient over 50 years of age.
5. Any patient whose bleeding stops and then recurs while on medical management.

conservatively and to perform elective operations rather than emergency ones. Conversely, it is important not to continue conservative therapy in the face of continuing hemorrhage. With continued bleeding, operation should be carried out within the first forty-eight hours, or sooner, since the mortality rate climbs rapidly the longer it is postponed. Kirtley<sup>6</sup> recommends emergency operation for the criteria as shown in Table VII.

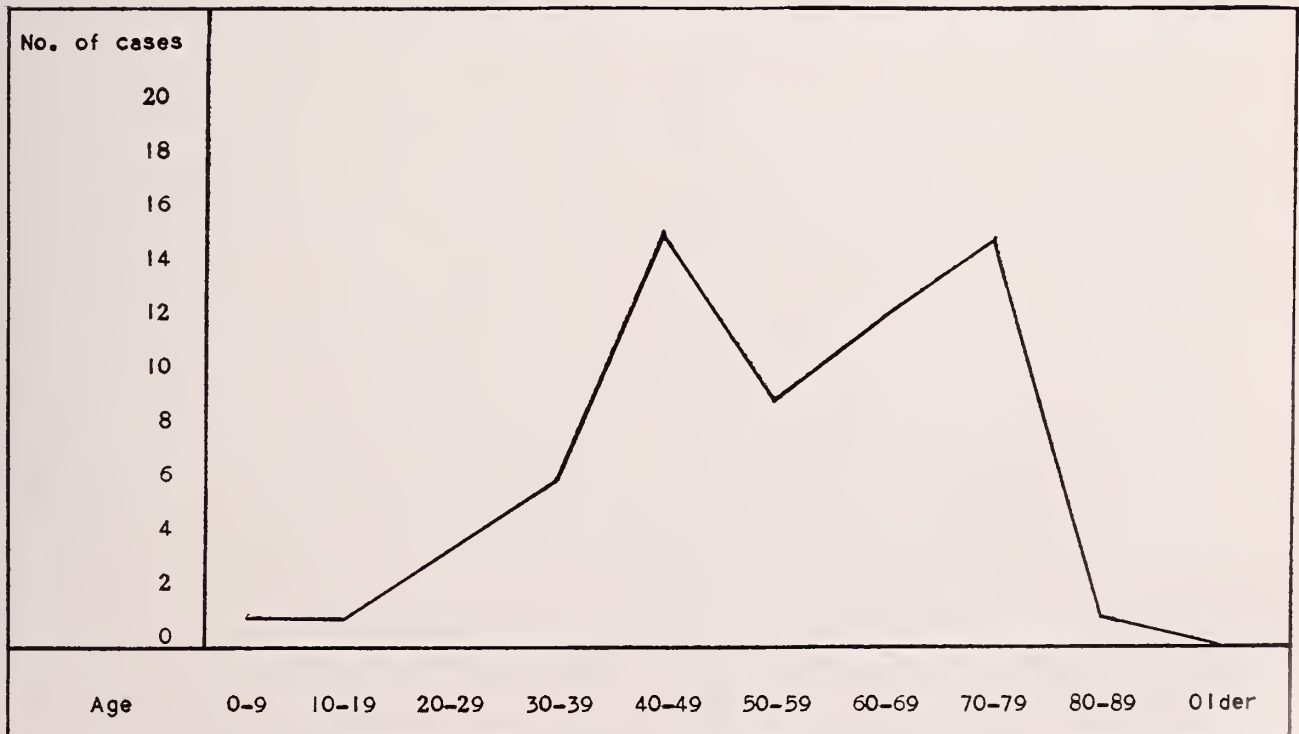
In evaluating a patient, two important

factors should influence the decision for early or emergency operation. The first is massive hemorrhage from gastric lesions. In our experience during the past ten years there were nine such cases. Four were treated medically with four fatalities. Three were treated conservatively followed by elective operation with one death; two had emergency operation with one death. The over-all mortality was 66.6%. These cases are too few to be statistically significant, but corroborate other reports<sup>7</sup> in the literature concerning the prognosis for hemorrhage from gastric lesions. Therefore, early emergency operation should be elected more frequently when the source of massive upper intestinal bleeding is from a gastric ulcer.

The second important factor that should influence the decision for early or emergency operation is age. Smythe<sup>2</sup> states, "There is no medical contraindication to surgery in severe continuing hemorrhage in a patient with an anatomical lesion amenable to surgery. In elderly patients, in whom one is

TABLE VIII

Age incidence of 60 patients with massive hemorrhage from peptic ulcer disease



most tempted to try a conservative approach, this may be dangerous. The factors which make one reluctant to operate also enhance the risk of delay. Vascular insufficiency of heart, brain, and kidneys may constitute an indication for early surgery rather than a contraindication." In the present series of cases the over-all mortality for massive hemorrhage from peptic ulcer disease was 17.4% for patients under fifty years of age and rose to 24.5% for patients over sixty years of age (Table VIII). In reviewing the mortality rates of such a series of patients, it is, therefore, quite important to know the age incidence as well as the number who were bleeding from gastric peptic ulcers.

### Summary and Conclusions

Over the ten year period 1948 through 1957, sixty patients were admitted to the University of Oklahoma Hospitals with the diagnosis of massive upper gastrointestinal hemorrhage from peptic ulcer disease. All of these patients were treated by one of three methods: medically alone with a mortality rate of 21.8% ; medically followed by elective gastric resection with a mortality rate of 13.0% ; or emergency operation of 23.1%. The over-all mortality for the entire group was 20.0%. Bleeding from a gas-

tric ulcer, or from a peptic ulcer of the duodenum after the fifth decade, is associated with a much higher mortality rate—66% and 24% respectively.

Because there is still no ideal way to treat such patients, each patient must be evaluated individually to determine the best form of therapy. Two factors which indicate early or emergency operation are hemorrhage in the aged and hemorrhage in patients with gastric ulcer.

### BIBLIOGRAPHY

1. Welch, C. E., Allen, A. W., and Donaldson, G. A. Surgical Management of Massive Acute Upper Gastrointestinal Hemorrhage. *New Eng. J. Med.* 252: 921, 1955.
2. Smythe, C. M., Osborne, M. P., Zamchek, N., Richards, W. A., and Madison, W. M. Bleeding from the Upper Gastrointestinal Tract. *New Eng. J. Med.* 256: 441, 1957.
3. Fainer, D. C., and Halsted, J. A. Sources of Upper Alimentary Tract Hemorrhage in Cirrhosis of the Liver. *Annals of Surg.* 145: 789, 1957.
4. Andresen, A. F. R. Results of Treatment of Massive Gastric Hemorrhage. *Am. J. Digestive Dis.* 6: 641, 1939.
5. Stewart, J. D., Rudman, I., Coleman, C., and Hale, H. W. The Definitive Treatment of Bleeding Peptic Ulcer. *Annals of Surg.* 132: 681, 1950.
6. Kirtley, J. A., Riddell, D. H., and Smith, D. I. Upper Gastrointestinal Hemorrhage of Obscure Origin. *Annals of Surg.* 145: 789, 1957.
7. Berkowitz, D., Thompson, C. M., Sussman, I., and Gambeseia, J. M. Acute Upper Gastrointestinal Hemorrhage. *J.A.M.A.* 160: 1398, 1956.

300 N.E. 13th, Oklahoma City, Oklahoma

\$125,866 RESEARCH GRANT has been awarded Robert H. Bayley, M.D., Professor of Medicine and Heart Station Director, for continuation of studies using new electronic computer techniques in measurement of the electrical field produced by the heart beat. National Heart Institute approved the grant for a five-year period.

# MEDICAL-SURGICAL CONFERENCE

## PHEOCHROMOCYTOMA

RENE MENGUY, M.D., Ph.D., and MRS. ESTHER COMPTON

Proceedings of a weekly conference sponsored by the Medical and Surgical Services, VA Hospital and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine.

*Doctor Camp:* The patient is a 68-year-old, white male who was admitted here on August 14, 1958. He had been complaining of palpitations, occasionally blurred vision with some headache and dizziness for about a year. His local physician had treated him for hypertension with some white pills which we later found out to be phenobarbital. The patient thought that he improved somewhat after this. His past history is interesting. In 1918, shortly after his discharge from the service, he was diagnosed as being schizophrenic and from that time until the present he has been in many institutions all over the country. His sister mentioned that he had been hypertensive since his discharge from the service but there is no record available of this. In 1954 the patient was admitted here with a left-sided pleural effusion which proved to be grossly bloody. Extensive workup was done at that time to find out whether or not the patient had tuberculosis and he was actually started on a specific treatment for tuberculosis with streptomycin and PAS. However, all cultures and guinea pig inoculations eventually proved to be negative. During the latter

part of that hospital stay he developed congestive heart failure and he was digitalized. He responded to this treatment very well. At that time, his blood pressure ranged between 200 and 240 systolic over 120 diastolic. His urinary workup showed nothing abnormal. He ceased taking digitalis when he left the hospital and since then he has had no more symptoms of congestive failure. From 1955 to 1958 he was relatively asymptomatic. On this admission his blood pressure was 250 systolic over 140 diastolic with a regular pulse of 104. The pertinent findings on physical examination were Grade III hypertensive fundi with several hemorrhages and old exudates. There was cardiomegaly and a Grade II systolic murmur was heard over the apex. The neurological examination was normal except for the patient's mental status which was compatible with a diagnosis of schizophrenia. The relevant laboratory workup was as follows: The WBC was within normal range with a normal differential. The hemoglobin was 14 grams with 47% hematocrit. The blood electrolytes were normal. Urinalysis showed a concentration of 1.010 to 1.012 with 2+ to 4+ albuminuria. A urine culture was positive for *E.coli*. This organism proved to be sensitive to chloramphenicol. A glucose tolerance test was done. His fasting blood sugar was 95 MG./100 ML. At one hour he



went up to 248 and at the end of four hours was down to 200. A diagnostic workup for the possibility of a pheochromocytoma was done. The Regitine test was markedly positive with a drop of 40 mm. systolic and 40 mm. diastolic following the intravenous injection of 5 mg. It was suggested that he be given 10 mg. and this was done. Immediately following the injection his blood pressure fell to 118/74. The patient developed a right-sided hemiplegia which lasted for 24 hours and gradually disappeared. The intravenous injection of 400 mg. of tetraethylammoniumchloride produced a fall in blood pressure. Urinary catecholamines were assayed and were abnormally high. His blood pressure ranged from 230 to 280 and he never had any episodes of flushing or sweating. The patient was prepared for operation on the 24th of last month. He was given 200 mg. of cortisone preceding operation. During the operation blood pressure determinations were done from minute to minute. During palpation of the right adrenal gland there was a significant rise in blood pressure which went from 160/100 to 220/140. There was no response on palpation of the left adrenal gland. The right adrenal gland was removed. During anesthetic induction there were no complications. The patient did not need to have Levophed during his operation nor was it necessary to use Regitine during the procedure. Post-operatively his course was not so benign. On the 3rd post operative day he became febrile. Blood cultures were obtained and the patient was started on chloramphenicol, penicillin and streptomycin. The blood pressure today was 230/160.

*Doctor Ridings:* The chest film at this time is clear to any abnormality. The excretory urogram shows no abnormalities on either side. No masses are seen around the kidneys either on this film or on the scout film of the abdomen.

*Dr. Hammarsten:* This patient brings up several problems. One that always troubles us on the Medical Service is which patient with hypertension should be tested for the possibility of a pheochromocytoma, and then which tests are going to be the most helpful. Doctor Conrad, would you comment on

the tests done on this patient, the biological tests in general, and the possibility of actual determinations of pressor amines in the urine.

*Doctor Conrad:* In regard to what type of patient should be selected for a Regitine test, I think that a good rule is that every patient who has hypertension or presents himself with a history of hypertension should be considered as a possible case of pheochromocytoma. Ordinarily, patients with this condition are younger than this patient and therefore, I think that you should be more vigorous in your search for pheochromocytoma in the younger patients. Certainly there seem to be fewer patients with pheochromocytoma who have a labile type of blood pressure. Most cases which are reported now are patients who have a fixed hypertension. Occasionally, as this patient presents, there will be evidence of severe retinopathy with pheochromocytoma, so that the presence of retinopathy per se does not rule out the possibility of a pheochromocytoma.

Regitine has proved the most useful of the agents used for the bedside diagnosis of pheochromocytoma. There are two circumstances in which the Regitine test will give a false positive result. First, which is the most common occurrence, is the patient with uremia. In uremic patients a fall in blood pressure following the administration of Regitine can occur in the absence of a pheochromocytoma. Another possible circumstance in which a false positive test may occur is in a patient who has received barbiturates. These patients will also respond occasionally with a fall in blood pressure to the administration of Regitine. Occasionally, the results of the test will vary somewhat according to the proportions of norepinephrine and epinephrine secreted by the tumor. When the tumor is secreting a large proportion of epinephrine the administration of Regitine may cause an immediate drop in pressure; whereas if the proportions of epinephrine secreted is small then Regitine will not give as sudden a fall in blood pressure.

There are other interesting facts about pheochromocytomas. First, it is surprising

that a number of these patients have hypotension. Upon assuming an upright position the patients will have a drop of blood pressure. I don't know with what frequency this phenomenon occurs but it has been reported as being a manifestation occurring in pheochromocytomas. The other interesting feature of pheochromocytoma is the regularity with which these patients show an increased oxygen uptake and increased metabolic rate, which may be sometimes very high, i.e., from 135 to 150 per cent. At the same time the patients show an elevation of body temperature with a rectal temperature that is consistently a degree or two above normal. During hypertensive crises the extremities become pale and sweaty, the skin temperature will fall. I think the only other comment I will make at the present time about patients with pheochromocytoma is that the cause of death of these patients is very often pulmonary edema. It is not known whether this acute pulmonary edema is associated with or due to acute temporary left ventricular failure or due to some effect of the circulating pressor substances or the pulmonary capillaries. Cyanosis and pulmonary edema are the most frequent causes of death.

*Doctor Hammarsten:* Would you comment on the usefulness of the biological test as opposed to the chemical determinations and also on the tetraethylammoniumchloride test which the patient had.

*Doctor Conrad:* I don't know too much about biological tests except how they are performing them here. Apparently everyone here is satisfied with their use. Regarding assays for pressor amines in the urine, I know that pressor substances can be demonstrated in the urine which do not necessarily reflect increased production by an adrenal medullary tumor. I would presume that false positive tests can be obtained although apparently the people who are using the tests here don't feel that way about it. I have no personal experience with the chemical determinations in the urine but along this line one might say that there are instances where levels of catecholamines in the urine have been found without pheochromocytoma. These patients as a rule

have been patients with an anxiety state. The concentrations of catecholamines in the urine although increased, did not approach levels ordinarily seen in patients with pheochromocytoma.

The tetraethylammoniumchloride test is more valuable in other instances of hypertension than in pheochromocytoma. The object of doing the test is in trying to differentiate between renal causes of hypertension and essential hypertension, the difference being that, when there is a renal cause for the hypertension, the circulating substances apparently produced by the kidney cannot be blocked by the use of ganglionic blocking agent and the hypertension will persist even though the ganglionic block is obtained with tetraethylammoniumchloride. The patient with essential hypertension will show a prompt fall in blood pressure as tetraethylammoniumchloride is given and a ganglionic block is produced. This is a neat way of trying to distinguish between renal and essential hypertension. The only exceptions to this rule are patients with chronic renal disease, late in the stage of renal disease.

Another comment which may be made at this point is that adrenal medullary tumors are not necessary for the production of the pheochromocytoma syndrome. Ganglionic tissue which can be responsible for hypertension is distributed anywhere in the body and can be found any place in the abdomen, in the thorax and cases have been recorded where a functioning tumor was discovered intracranially.

Q. Would you comment on the cold pressor test and its value in the workup of a patient with pheochromocytoma?

*Doctor Conrad:* The cold pressor test has been used ordinarily in patients who have essential hypertension or who have a pre-dilection for hypertension. These patients will show a satisfactory early response to the cold pressor test. In such patients the cold pressor response is greater than the response obtained by administration of some provocative agent for pheochromocytoma like histamine. In patients with a pheochromocytoma with a normal blood pressure at



the time of the test, the cold pressor test is usually exceeded by the response to the provocative test by histamine. I don't believe that the cold pressor test is of any help in the clinical examination of patients with labile or fixed hypertension due to pheochromocytoma.

*Doctor Hodges:* I was particularly interested in Doctor Conrad's statement that orthostatic hypotension is one of the manifestations of pheochromocytoma. Unfortunately, this patient has not been out of bed for many years, so that it is difficult to get a good idea about this symptom. On two or three occasions in which we tried to get him up post-operatively this did occur. The reason he hasn't been up more since operation is because he has phlebitis in the area of the cutdown on his leg.

Prior to operation, I was very much in favor of having air studies done on him so that we would know whether there was more than one tumor. Certainly, from what is presented here it seemed very likely that this patient had at least one tumor, and possibly had tumors on both sides. The significance of this was of course that we would have to be prepared for removal of both adrenal glands. Aortography was not done because there has been a death reported after aortography in a patient with pheochromocytoma. This case report was interpreted by the writer as being a very definite contraindication of aortography in any case of pheochromocytoma. I don't know for certain how he arrived at these conclusions because the autopsy showed actual rupture of the tumor, and the author surmised that the injection of the contrast media stimulated the outpouring of a great deal of norepinephrine or whatever substance was being secreted and that this was sufficient to rupture the tumor with the patient's demise from hemorrhage. In view of such a report one should be reluctant to perform aortography. Since the medical workup was quite definite we didn't feel that this risk had to be taken. However, in view of the subsequent developments, I do wish that we had known what the inside of the renal arteries looked like. We palpated them at operation and were not able to make anything spe-

cific except that they were quite hard and one can't tell from a hard artery whether it's obstructed inside or whether it's merely calcified. However, we did make a very thorough examination of the abdomen and as has been related already, the only time that we produced an actual rise in blood pressure was during palpation of the right adrenal gland. Both adrenal glands were visualized and no tumor was found in either of them. Because of this response on the right side the right adrenal gland was entirely removed. The pathological examination shows no sign of any tumor or hyperfunctioning medullary tissue. We palpated the aorta up to the diaphragm as well as along the vena cava. We also examined the root of the mesentery and every other location suggested where a tumor might be. Since the operation the patient continues to behave like a patient with a pheochromocytoma. The blood pressure now fluctuates very widely at different intervals throughout the day with no known cause. We are now wondering if there is still a possibility of his having such a tumor in the mediastinum. We feel fairly certain that it is not in the abdomen.

*Doctor Campbell:* For those of you who are interested in reading further about this problem, there is a good review article in the November 1957 issue of the "*Journal of Chronic Diseases*."<sup>1</sup> Now I would like to go over a couple of brief points. The clinical syndrome was first reported in 1886 by Frankel and in 1927 the first time that anyone operated on a patient who had a retroperitoneal tumor resulting in hypertension was Doctor C. H. Mayo. The patient's retroperitoneal tumor was removed and the blood pressure returned to normal. As you know, Doctor Grace Roth, of the Mayo Clinic was the first to use histamine in trying to produce an attack in the patients with pheochromocytoma and she has had a long and continued interest in this field. Doctor Roth is in the operating room at all times when patients at the Mayo Clinic are being explored for a pheochromocytoma. It is sometimes a little discouraging to find in how many varied locations the chromaffin tissue may be because it has been reported in the heart, the testes, liver, kidney and



other sites. One favorite hiding place that Doctor Hodges looked for is the origin of the superior mesenteric artery. Tumors vary in weight from 5 up to 2,000 gms. The age variation is also very wide; pheochromocytomas have been removed from a patient five months of age and from a patient as old as 81 years. However, 90% of the tumors are present in the adrenal gland and it seems to be more frequent in the right adrenal than the left. Approximately 16% of the tumors are bilateral, and approximately 8% of them are malignant. A case report published in the Scandinavian literature gives an idea of the difficulty encountered in finding some of these tumors. The patient was operated on nine times unsuccessfully; finally the tumor was found up behind the liver in the area of the inferior vena cava. It is very important to have Regitine in the operating room when the patient is being explored for a tumor. Palpation of the tumor can produce severe hypertension and as much as 25 mg. of Regitine in divided doses may be necessary to keep the pressure at fairly normal levels. Following the operative procedure, the big problem if a tumor has been removed, is one of severe hypotension. This can be managed by norepinephrine. Doctor Conrad mentioned that one of the possible causes of death in patients with this disorder is acute pulmonary edema. This may be the basis of acute backward heart failure due to severe systemic vasoconstriction and hypertension.

*Doctor Menguy:* When one operates upon a patient suspected of having this condition one is reminded of operation for hyperparathyroidism, for hyperinsulinism or for Cushing's disease. The surgeon operating on patients with such conditions is working on mere circumstantial evidence. There is no radiological, or palpable evidence of a tumor. Therefore, one has to undertake operation that is often of an extremely major nature with no objective evidence of the lesion. Therefore one should not undertake the surgical treatment of a patient with a suspected pheochromocytoma very lightly. One should proceed only on extremely secure grounds with all the laboratory tests that we have at our disposal. I would have liked to have seen a provocative test with hista-

mine in this patient since he does have a labile type of blood pressure. Speaking of laboratory tests, there is a chemical test that can be used in this condition. This test was first used by Von Euler and consists in the assay of catecholamines or epinephrine-like substance in the blood. The original method was extremely unwieldy and difficult. This method has been modified and simplified by Doctor William Manger<sup>2</sup> and the test as used at the Mayo Clinic can be run by technicians. Normally there are about three to five micrograms per liter of epinephrine-like substances in the blood. In a patient with pheochromocytoma the levels are higher than six micrograms per liter. As far as I recall, in normal control patients no levels higher than five micrograms were found and I do not recall there being any false positives. In a patient with a labile type of blood pressure the assay for these epinephrine-like substances can be done in blood drawn at a time of an attack produced by injection of histamine. I think that the future of diagnosis in pheochromocytomas lies in this method.

Regarding air studies, I think they are useless in patients with pheochromocytomas. The risk of producing a very severe hypertensive crisis by manipulation incident to the air study is always present. The attack, of course, could be controlled by Regitine. If there exists good evidence for the diagnosis, one does not have to know on which side the tumor is present because exploration is done through the abdomen. The problem is different from that of Cushing's Disease in which, due to the patient's obesity, the exploration has to be conducted through one flank. Therefore, in such conditions, it may be useful to know on which side the tumor is on.

Incidentally, a good method for finding which side the tumor is present is simply to palpate the abdomen and the flanks. Very often, especially when the tumor is of a significant size, a hypertensive crisis can be produced by palpation of the side of the abdomen on which the tumor is located. Occasionally a pheochromocytoma may be revealed in a patient in which it was unsuspected previously when exploratory laporo-

tomy is done for some other condition. Manipulation or contraction of the abdomen incident to induction of anesthesia will produce a very severe hypertensive crisis. This should make one suspect a pheochromocytoma.

Doctor Campbell has touched on the hypotension following removal of the adrenal tumor. This is a phenomenon common to all endocrine tumors. Removal of a functioning tumor results in a temporary depression of the function of that particular tumor. Temporary diabetes occurs following the removal of an islet cell tumor, tetany follows the removal of parathyroid tumor and acute cortical insufficiency is produced by the removal of an adrenocortical tumor. Similarly, when one removes a pheochromocytoma a dramatic fall in blood pressure occurs. This must be controlled by the administration of Levophed. In this regard, it has been found that patients having been treated by hypertensive drugs such as Arphonad are temporarily resistant to Levophed. Therefore, if a patient is to be operated on for pheochromocytoma, one must make sure that he has been off such drugs for at least one to two weeks.

These tumors have one peculiarity, in that histologically it is impossible to tell whether they are malignant or benign. Only recurrence of symptoms following removal of the primary tumor will tell if that tumor was malignant. One other interesting point that may be mentioned is that almost never are these patients obese. Due to their hypermetabolism the vast majority of them are thin or at a fairly normal weight level for their size.

*Doctor Woods:* I would like to say a few words about the assay of pressor substances in the blood. An acquaintance of mine, Doctor McC. Goodall, at Duke, has worked for several years assaying catecholamines in blood and urine. He has used a biological assay which has the advantage of differentiating epinephrine from norepinephrine. The importance of this lies in the well known fact that tumors may vary in the relative amounts of epinephrine and norepinephrine secreted. Therefore, in a case in which the tumor is secreting nothing but norepinephrine, you would expect to find bradycardia rather than tachycardia. You would also not expect to find any great change in glucose metabolism. The pheochromocytomas which produce mainly norepinephrine are the ones which, in general, produce the plateau type of hypertension, while those secreting mainly epinephrine produce paroxysmal hypertension.

Regarding the assay of pressor substances in the blood, we have felt that the fluorometric methods used for this assay are not reliable enough, at least as regards the assay in the blood where the levels are low. The fluorometric assay seems to be more reliable in the urine where the concentration is higher. In our experience the 24-hour secretion of pressor amines was not above 200 micrograms in cases of essential hypertension. In cases of pheochromocytoma the 24-hour levels started generally about 400 in 24 hours and went up over 2,000 micrograms.

#### REFERENCES

1. Watkins, D. B. Pheochromocytoma: A Review of the Literature, *J. of Chronic Diseases* 6: 510-27, 1957.
2. Manger, William. A Method for Quantitative Estimation of Epinephrine and Norepinephrine Preliminary Report, *Proc. Staff Meet. Mayo Clin.* 28: 526, 1953.

800 NE 13th, Oklahoma City, Oklahoma



## ABSTRACTS

### Cardiovascular Reactions to Symbolic Stimuli

STEWART WOLF.\*

Circulation, 18: 287-292, August, 1958

Much of the confusion concerning the role of life stress in disease derives from failure to distinguish between cause and mechanism. All mechanisms are per force organic and at the same time functional, since they involve the functions of units of the body's equipment. Causes, on the other hand, are likely to derive from the outside, often from noxious stimuli in the environment. The causes, which may be multiple, activate the pathogenic mechanisms and produce bodily disorders and disease. The ability of symbolic stresses to participate in the activation of disease mechanisms depends upon the fact that most bodily organs are connected with and responsive to impulses reaching them via autonomic and endocrine pathways from the highest integrative centers of the nervous system, the interpretive areas of the brain. The cardiovascular apparatus is no exception to this generalization and it was therefore possible to document the effects of stress on the rate and rhythm of the heart, the pattern of the electrocardiogram, hemodynamic mechanisms, the mechanisms responsible for renal blood flow, and blood flow through other viscera. There is also evidence that reactions to life stress enter into the mechanism which determines the level of circulating cholesterol and serum lipids. These reactions were formulated into a theory which was propounded as the physiologic response "as if". It was pointed out that most individuals who see a cinder in the eye of another begin themselves to lacrimate as if there were a cinder in their own eye. A hungry person who sees or even thinks about a delicious meal may salivate and may indeed pour forth increased amounts of gastric juice. Another example of the physiologic response "as if" was observed in the study of cardiac output in response to exercise. It soon became evident that it was unnecessary to exercise the subjects in order to induce the characteristic hemodynamic adjustments. They could readily be called forth by the mere discussion of exercise. A possible "as if" response to explain increased serum lipids during psychological stress included the assumption that lipids are mobilized into the blood to meet demands for unusual muscular effort. There is some evidence from treadmill and other studies that this is true. Perhaps the coronary-prone individual sees the challenges in his life figuratively in terms of burdens, and therefore he adapts physiologically as if unusual muscular effort were involved and calls forth a high concentration of lipids into the blood stream. At the present time, of course, such an inference is purely speculative but it may stimulate productive efforts along new directions in research.

\*Professor of Medicine.

### A New Anastomotic Approach to Radical Left Colectomy Preliminary Report

G. M. BROWN, Jr.,\* and T. A. BYRD.\*\*

The American Surgeon, 24: 141-147, 1958

A new anastomotic approach to radical left colectomy in a series of twelve dogs has been presented. The basis of this approach is a reversal of flow of bowel contents from left colon to right. Its satisfactory function has been observed in dogs over varying periods of from two to ten months. All surviving dogs have maintained their preoperative weight or have gained weight. Gross anatomic and roentgenogram changes have been discussed and examples presented.

If absorptive studies on this problem prove as satisfactory as the physical and clinical studies, this procedure may present an adjunctive method of unrestrained left colectomy. By allowing restoration of bowel continuity, this procedure can extend the scope of resection, irrespective of individual physical or anatomic variants.

\*Visiting lecturer in the Department of Surgery, University of Oklahoma School of Medicine.

\*\*Doctor of veterinary medicine.

### Evaluation of a Method for Detecting And Following Urinary Tract Infection in Females Without Catheterization

HARRIS D. RILEY, JR.\*

The Journal of Laboratory and Clinical Medicine, 52: 840-848, December, 1958

In order to avoid the hazards of bladder catheterization, a method of collecting urine for culture in females by means of a clean voided technique was investigated. A comparison of 81 pairs of catheterized and voided urine specimens from 42 female patients, 34 of whom had paralytic poliomyelitis and eight with no evidence of urologic disease or conditions predisposing to urinary tract infection, was made. Comparison of these paired samples from the same individual according to the species and number of bacteria isolated revealed that satisfactory urine specimens for culture can be obtained by the voided technique. When used in conjunction with colony counts or gram-stained smears of the urine, it is an adequate method of detecting significant bacteriuria in females. It is a particularly valuable procedure for screening for urinary tract infection, especially in patients predisposed to urinary infection, and in whom catheterization is almost certain to produce urinary infection. The risks inherent in bladder catheterization should not be neglected and its use restricted to situations in which it is clearly indicated. To establish an accurate diagnosis of urinary tract infection determination of the number of bacteria present in the urine is as important as their identification.

\*Professor of Pediatrics.



## Determination of Magnesium In Erythrocytes

RAUL CARUBELLI,\* WILLIAM O. SMITH,\*\* and  
JAMES F. HAMMARSTEN.\*\*\*

J. Lab. and Clin. Med. 51: 964-976, June, 1958

Magnesium deficiency as the cause for clinical syndrome in man has been reported by several groups of investigators but has not been universally accepted. It is true, for instance, that not all patients with delirium tremens have a low serum magnesium concentration. It is also true that some patients without symptoms of magnesium deficiency may have a low serum value.

It has been postulated that the intracellular fluid magnesium level would be a better guide to a body deficit than the extracellular fluid (serum) level and might correlate more closely to clinical symptomatology. This appears reasonable when one considers that magnesium is primarily an intracellular cation and exerts its biological effects mostly within the cells.

Accordingly, a technique for measuring intracellular magnesium concentrations has been developed. Measurement is made on erythrocytes since these are the only readily accessible cells. The technique consists of the spectrophotometric titration of magnesium with EDTA after removal of iron by combination with potassium thiocyanate and extraction with isoamyl alcohol. Recovery studies proved most satisfactory.

Erythrocyte magnesium concentration has been measured on 13 healthy adults. The mean value is  $5.29 \pm 0.34$  mEq./L. with a normal (2 S.D.) range of 4.61 — 5.97 mEq./L. Studies on disease states, principally delirium tremens and uremia, are underway.

\*Biochemist and Research Associate of the Biochemistry Section, Oklahoma Medical Research Foundation.

\*\*Assistant Professor of Medicine, University of Oklahoma School of Medicine; Assistant Chief Radiosotope Service, Veterans Administration Hospital.

\*\*\*Associate Professor of Medicine, University of Oklahoma School of Medicine; Chief Medical Service, Veterans Administration Hospital.

## Necrobiosis Lipoidica Diabeticorum

JAMES W. KELLEY.\*

Plastic and Reconstructive Surgery, 22: 342-347, October, 1958

Necrobiosis lipoidica diabeticorum has always been considered a medical or dermatological problem. In 1951, however, Cawley and Dingman reported a case successfully treated with radical excision and skin grafting. The plastic surgery literature fails to make mention of this disease or its treatment. Therefore it was thought advisable to present this review of the existing literature and to report another case successfully treated with radical excision and skin grafting so that others may possibly benefit from these observations.

\*Instructor, Department of Surgery, University of Oklahoma School of Medicine.

## Urinary Tract Infection in Paralytic Poliomyelitis

HARRIS D. RILEY, JR.,\* and VERNON KNIGHT.\*\*

Medicine, 37: 281-297, December, 1958

The development and course of urinary tract infection has been described in 44 of 50 nearly consecutive cases of paralytic poliomyelitis. The disease is characterized by its incidence, frequent lack of urinary symptoms, persistence, and steady progression in the severely disabled patients. Bladder catheterization and immobilization are important influences in the development of urinary tract infection. Treatment is only slightly effective. A presumed result of frequent use of antimicrobial drugs is a high predominance of *B. proteus* and *A. aerogenes* in cultures of urine. Urolithiasis was present in 21 of the 44 patients with urinary tract infection.

Twenty per cent of the patients exhibited persistent diastolic hypertension, which appeared to result from some effect of poliomyelitis other than renal damage by infection.

\*Professor of Pediatrics.

\*\*Associate Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee.

## Requirements of $Mn^{++}$ and $Co^{++}$ for the Synthesis of Ascorbic Acid by Liver Extracts Of Animals Deprived of Tocopherol

RANWEL CAPUTTO,\* PAUL B. McCAY,\*\* and  
MARY P. CARPENTER.\*\*\*

The Journal of Biological Chemistry, 233: 1025-1029, November, 1958

Enzyme preparations from livers of vitamin E-deficient rats and rabbits synthesized 70 to 90 per cent less ascorbic acid than preparations from control animals. The effect was observed after feeding diets with a low content of tocopherol from two to twenty days at which time the experiments were terminated. Addition of  $Mn^{++}$  increased synthesis 315 per cent in preparations from deficient animals but had no effect on preparations from controls.  $Co^{++}$  produced increases of 278 per cent and 35 per cent in deficient and control preparations, respectively. Ethylenediaminetetraacetate activated the preparations from deficient animals 480 per cent but had no effect on control animal systems.

Determination of  $Mn^{++}$ ,  $Ca^{++}$ , and  $Mg^{++}$  in the livers disclosed no differences between control and deficient animals. Total Fe and  $Fe^{++}$  ions were slightly diminished. The findings suggested that in tocopherol deficiency the states of some metal ions are altered, causing them to function less efficiently.

\*Associate Professor of Research Biochemistry, University of Oklahoma School of Medicine, and Head of Department of Biochemistry, Oklahoma Medical Research Foundation.

\*\*Instructor in Research Physiology, University of Oklahoma School of Medicine, and Assistant Head of Department of Biochemistry, Oklahoma Medical Research Foundation.

\*\*\*Biochemist, Biochemistry Section, Oklahoma Medical Research Foundation.

## Two New Faculty Members

New names on the faculty roster of the University of Oklahoma School of Medicine include Ollie Boyde Houchin, Ph.D., assistant professor of research biochemistry and Marjorie S. Keele, M.D., instructor in pediatrics.

Their appointments were recently approved by Regents of the University of Oklahoma.

Doctor Houchin was an instructor in pharmacology at the Medical Center from 1942 to 1944. He returned last fall to join the staff of the oncology section of the Oklahoma Medical Research Foundation.



HOUCHIN

The biochemist holds an M.A. from the University of Missouri. He then studied at Yale University one year before completing work for his doctorate at State University of Iowa.

After leaving the Medical School here in 1944, he was assistant professor of biological chemistry at Loyola University Medical School, Chicago; assistant professor of biochemistry and pharmacology at University of Louisville Medical School; assistant professor of chemistry at Denver University, and, from 1951 to 1958, assistant professor of medicine and neurology at the University of Arkansas School of Medicine, Little Rock.

Current research includes studies of the biochemical nature of schizophrenia and the effect of parathormone and citrate on magnesium deposits in bone.



KEELE

Doctor Keele was an instructor in the Department of Pediatrics of Southwestern Medical College, Dallas, for two years before coming to Oklahoma City.

She received her M.S. at North Texas State College, Denton, and her

## Woods Awarded Clinical Investigatorship

Alexander H. Woods, M.D., a new instructor in medicine at the University of Oklahoma School of Medicine and physician on the Veterans Hospital staff, has been awarded a Veterans Administration clinical investigatorship, one of a dozen such grants given nationally this year.

He came to the Medical Center from Duke University Medical School, where he was a U. S. Public Health Service post-doctoral research fellow in biochemistry the past two years.

The three year clinical investigator appointment will give him an opportunity to devote more time to research he has started in the following fields: transplantation of living tissues; immune reactions as a cause of disease; cancer therapy.



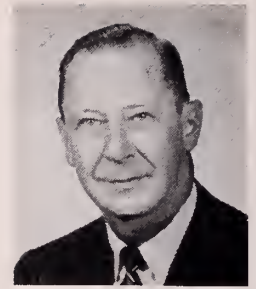
WOODS

Doctor Woods received his bachelor of science degree in biochemistry at Harvard; his M.D., at Johns Hopkins Medical school. He interned at Johns Hopkins Hospital and took residencies in medicine at Duke Hospital and the Durham, N.C., Veterans Hospital.

He was an instructor in medicine at Duke from 1955 to 1956 and later served as acting chief of hematology at the Durham hospital, attending physician and consultant in the medical outpatient clinic.

M.D. at Southwestern in 1949. After interning at Parkland Hospital in Dallas, she served a pediatric residency at Children's Medical Center, Dallas, from 1950-53, and was chief resident and teaching fellow for one year of that period. Later she was a pediatric cardiologist fellow at the University of Minnesota.

# PRESIDENT'S LETTER



In review of the past year under the present administration, we cannot say that any of our major problems of organized medicine have been completely solved, or that they will ever be, but in all fields we believe that significant gains have been made and that the dignity of your Medical Association has continued to grow. These accomplishments have not been the result of any one individual, but the fine cooperative effort of your committees, governing body, and the county medical societies all working together as a team.

As we look toward the future, the one thing that stands out as the most important tool of Organized Medicine—in which the Oklahoma State Medical Association is a part—is unity, willing cooperation, adherence to a code of ethics, and constant striving to improve medical care for our patients. Your new president and officers for 1959-60 need this kind of support, and with it you can be sure of excellent leadership.

I would like to express my sincere gratitude to all of you for the privilege of serving this past year as your President. I have had the finest committees, council and staff that any president could ever hope for. Cooperation has been most inspiring from beginning to end, and to all of these men I owe a special vote of thanks. For any success that we can claim, these men deserve the credit. As for myself, I feel that I have been the most richly rewarded.

A handwritten signature in dark ink, reading "E. C. Mohler, M.D." with a stylized flourish at the end.

E. C. MOHLER, M.D.  
President



# CONTROL VERTIGO, DIZZINESS... AND ELEVATE THE MOOD



with **Dramamine-D<sup>®</sup>**

brand of dimenhydrinate with dextro-amphetamine sulfate

"Disturbances of balance resulting from vestibular disorders have long been known to lead to severe anxiety."\*

Vertigo—whether of organic or functional origin—tends to leave depression in its wake. Dramamine-D is a therapeutic combination designed for treatment of the entire vertigo-reaction syndrome. Each tablet contains dimenhydrinate (50 mg.) to control dizziness, and dextro-amphetamine sulfate (5 mg.) to elevate the mood.

\*Pratt, R. T. C., and McKenzie, W.: Anxiety States Following Vestibular Disorders, *Lancet* 2:347 (Aug. 16) 1958.

**Dramamine<sup>®</sup>** available as tablets, ampuls, liquid, suppositories

Research in the Service of Medicine

**SEARLE**

## FIFTY YEARS OF MEDICAL GENETICS

The union of biochemistry and genetics offers a rational approach to diagnosis, prevention, and therapy.

FIFTY YEARS ago, in 1908, Sir Archibald E. Garrod, presented in England a most remarkable set of Croonian lectures,<sup>1</sup> setting forth a new concept of human disease, which he called "inborn errors of metabolism." Garrod was far ahead of his time in this concept, and it took many years for geneticists to appreciate the full significance of his contribution. The rapid and widespread development of medical genetics at the present time owes its inception to the recently renewed interest of human geneticists in Garrod's demonstration that, through mutation, the dysfunction of a gene-controlled enzyme necessary for normal metabolism is a basic mechanism in the production of genetic disease.

The term "genetic disease" is used in this paper to apply broadly to any deviation from the usual or normal condition, for which a genetic basis can be established. I shall attempt to show that there are reasons for believing that genetics is involved in one way or another in the development of all disease.

Garrod illustrated his concepts with his own basic studies of four human anomalies: albinism, alcaptonuria, cystinuria and pentosuria. Today, both in experimental organisms and in man himself, the identification of many enzyme dysfunctions with mutant genes has reached a high point of development. On this 50th anniversary of

### LAURENCE H. SNYDER, Sc.D.

Laurence H. Snyder, Sc. D., President of the University of Hawaii, received his doctorate from Harvard in 1926. He has held national presidencies in the American Association for the Advancement of Science, the Genetics Society of America, the American Society of Human Genetics, and Phi Sigma. Before going to Hawaii, he was Dean of the Graduate College at Oklahoma University.

Doctor Snyder also holds memberships in Phi Beta Kappa, Sigma Xi, Alpha Epsilon Delta and Phi Kappa Phi.

This article is based on Doctor Snyder's AAAS presidential address, which was given on December 28, 1958, during the Washington, D.C., meeting.

Garrod's basic contribution, it is with deep appreciation of his foresight and ability that I offer a survey and critique of some of the advances in medical genetics that we have been able to build on the foundation of his fundamental concepts. Through the expansion of these concepts, genetics and biochemistry are rapidly becoming facets of one and the same science, and the resulting mosaic is playing an indispensable role in the progress of medicine.

The reawakening of the interest of medical geneticists in the biochemical backgrounds of genetic diseases apparently had to await the occurrence of a number of other developments.<sup>2</sup> Three main events brought into sharp focus the steps intervening be-

Reprinted by special permission of SCIENCE, 1515 Massachusetts Ave., NW, Washington 5, D. C.

tween the presence of a gene in the cell and the appearance of a trait or disease in the individual, and thus led to a renewed interest in Garrod's suggestions. The first of these events was the firm establishment of the concept that all metabolism proceeds through series of small sequential steps, each step catalyzed by an enzyme. The second was the demonstration<sup>3</sup> that increase in radiation level can increase the mutation rate. The third event was the realization<sup>1</sup> that with the aid of radiation-induced mutations the biochemical activities of genes can be definitively studied in microorganisms which are peculiarly suited both to genetic and biochemical investigation. The researches undertaken all over the world along these lines have brilliantly demonstrated the facts that many enzyme dysfunctions are indeed referable to specific mutant genes and that it is reasonable to presume that the production of normal enzymes is dependent on the activity of the normal unmutated alleles of these mutant genes.

## Metabolic Blocks

Theoretically, we may conceive of a number of ways in which the lack, or partial lack, or inhibition of an enzyme may lead to altered metabolism, and thus, perhaps, to pathological consequences. I shall present some of these possibilities in simplified form, adding examples from genetic pathology in man where they are known or suspected.

Consider the sequential reaction



in which each arrow represents an enzyme catalyzing the conversion of one substance to another. The specificity of each enzyme is considered to be the result of the activity of a single gene.

As an illustrative example of what is meant by a conversion catalyzed by one enzyme, xanthine (one of the purines) is oxidized to uric acid by the enzyme xanthine oxidase. The uric acid is then excreted in the urine. In the reaction shown in Fig. 1, note the essential similarity of xanthine and uric acid, and the addition of an oxygen atom brought about by the activity of the enzyme.

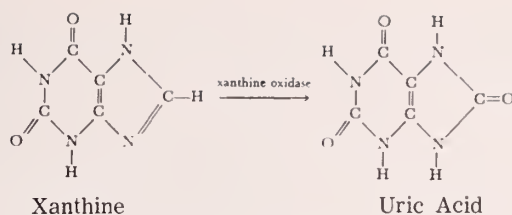
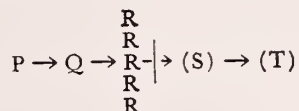


Fig. 1. Oxidation of xanthine to uric acid

Returning to the sequential reaction



consider now the gene that controls the enzyme that converts R to S. As a consequence of mutation, the mutant form of this gene may result in a somewhat different molecule, no longer enzymatically effective in facilitating the reaction, or at least no longer as effective as it formerly was. One likely consequence of the metabolic block is that substance R will accumulate.



(The letters in parentheses indicate that the substance is no longer produced, or is produced in diminished amounts.)

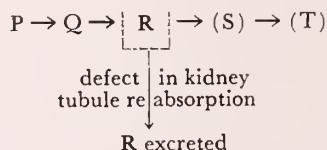
The mere accumulation and storage of R may lead to pathological consequences. A probable example in man is Nieman-Pick disease, in which the genetic failure to degrade sphingomyelin causes this lipid to accumulate in the reticular and other cells, resulting in the manifold symptoms of the disease. A similar genetic failure to degrade one of the gangliosides leads to the storage of this lipid in the ganglion cells, with the resulting syndrome of infantile amaurotic idiocy.<sup>5</sup> The recent discovery of a new phospholipid, malignolipin, found only in malignant tumors and never in normal tissues, may, if confirmed, eventually place cancer in this category.<sup>6</sup>

Another possibility is that the accumulation of substance R may lead to its being excreted from the body. The excretion may be accompanied by symptoms, as stone formation, hematuria, and frequent micturition, in the disease xanthinuria, in which xanthine is not oxidized to uric acid.<sup>7</sup> Conceivably the excretion could lead to pathological consequences by depletion of R or its pre-



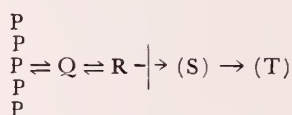
cursors, or of other substances involved in the metabolism. In the last analysis, diabetes may well prove to belong in this general category.

It should be mentioned in passing that there is a genetic disturbance of quite a different sort that can also lead to excess excretion, in the urine, of a substance normally found there only in minute amounts, if at all. This disturbance is not a block in the direct metabolism of the substance excreted, but is rather a defect in the renal tubular reabsorption mechanism for that substance.



The precise genic action involved is as yet unspecified, but the phenomenon occurs in such diseases as glycinuria, cystinuria, and renal glycosuria.<sup>8,9</sup>

If the reaction  $P \rightarrow Q \rightarrow R$  is reversible, substance P rather than substance R may accumulate, leading to disease.



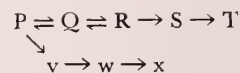
One type of glycogen disease of the liver is an excellent example, in which the genetic dysfunction of glucose-6-phosphatase prevents the reconversion of glycogen to glucose, but at a point several steps removed from glycogen itself; the reversible nature of the rest of the reaction results in the accumulation of glycogen.<sup>10,11</sup>

In some instances the mere absence of substance T may characterize the trait. Albinism, for example, is the result of the absence of melanin, due to the genetic dysfunction of tyrosinase. When this enzyme is lacking, tyrosine is not oxidized to dihydroxyphenylalanine, which latter substance normally proceeds through various conversions to melanin. Apparently the tyrosine is then metabolized through alternative pathways, with no further noticeable effects.

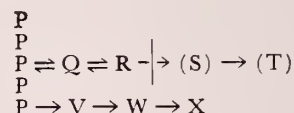
#### Alternative Pathways

Alternative metabolic pathways are not unusual in biochemical conversions, and this

fact presents further possibilities in the production of genetic disease. It may be, for example, that although the bulk of substance P proceeds through Q, R, and S to T, some small amount of it normally passes through the steps  $P \rightarrow v \rightarrow w \rightarrow x$ .

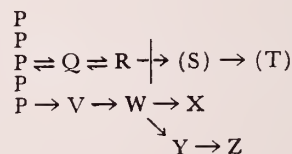


(The small letters are used to indicate that lesser amounts of substance P ordinarily follow this path.) If, then, the metabolic break occurs as before between R and S, and if substance P is thus accumulated, much more of it may be forced through this alternative pathway, and increased amounts of V, W, or X may cause pathologic effects through the altered patterns of substances in the cells.



An example in human genetics is the severe mental disease phenylketonuria, in which phenylalanine cannot be oxidized to tyrosine, and as a result passes in large amounts through deaminating reactions which certainly derange the amino acid balance in the cells.<sup>12</sup>

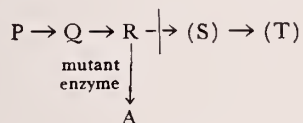
When a substance is forced through an alternative metabolic pathway, still other possibilities are opened up. When large amounts of W, for example, are available, some of this substance may in turn be diverted to a series of conversions not ordinarily followed:  $W \rightarrow Y \rightarrow Z$ .



Under such circumstances, Z may conceivably cause pathological effects. No example in man has been clearly established, but the development of the abnormal form of the glycolipid kerafin in Gaucher's disease may be due to a reaction of this nature. The pigments laid down in ochronosis and causing degenerative osteoarthritis in some but not all patients suffering from alcaptonuria

could well be examples of this type of genetic pathological development.

Finally, the mutant gene may result not merely in the lack of the enzyme formerly produced, but in the presence of a demonstrably functional but somewhat different enzyme. We have become aware of the fact that when the gene responsible for an *antigen* mutates, a specific but different antigen usually results from the activity of the mutant gene. It is probable that a similar phenomenon occurs in mutations involving enzymes.



If, for example, the enzyme which formerly converted R to S is changed through mutation in such a way that it now converts R to A (a new substance), the presence of A may give rise to pathological consequences. The ten or more variant forms of hemoglobin,<sup>13</sup> each of which may result in a greater or lesser degree of anemia, are instances of this type of genetic disease. Sick hemoglobin, for example, differs from normal hemoglobin in *only one* of the nearly 300 amino acid units of the half molecule, one of the glutamic acid residues of normal hemoglobin being replaced by a valine residue in the sick form.<sup>14</sup> In this instance the enzyme controlled by the mutant gene accounts for a very slight alteration of amino acid sequence in the polypeptide chain. Even this alteration, however, is sufficient to cause the illness and subsequent death of those individuals having only this type of hemoglobin.

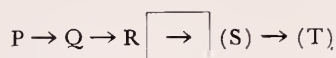
### Inhibitors

In addition to the foregoing suggestions, which deal primarily with enzyme lacks that are dependent on recessive mutations in genes which normally produce functional enzymes, one other possibility should be mentioned. It is known that enzymes may be interfered with by inhibition, and it seems likely that the inhibitor may at times be a substance produced by a mutant gene which is not itself directly concerned with the development of the enzyme inhibited. Since the inhibition appears to be caused

by an active, effective substance, we tend to think of genetic inhibitors in terms of *dominant* mutations which result in specific substances causing metabolic blocks.

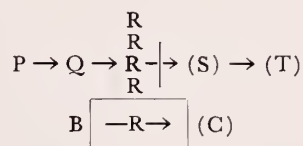
While it is certainly conceivable that the production of an effective substance could in some instances be contingent upon the homozygous state of a recessive gene, most genes seem to be capable in single dose of elaborating reasonably adequate amounts of the substances, and are thus in some degree dominant to their alleles which fail to produce the active agents.

In the reaction below, the action of the inhibitors is indicated by a box around the enzyme.



A probable example in medical genetics is the inhibition of the enzyme enolase in glycolysis, resulting in the disease hereditary spherocytosis.<sup>15</sup>

Many complications may be envisaged in regard to inhibitions of enzymes. To cite just one of these, it is known that excesses of certain normal metabolites may act as inhibitors. In the reaction below, the mere accumulation of substance R as a result of the genetic dysfunction of the enzyme converting R to S may cause inhibition of the enzyme converting B to C.



An example in man is the greatly reduced pigmentation which occurs incidentally in individuals suffering from the severe mental disease phenylketonuria. The excess of phenylalanine, which is found in those who have this disease, has been shown to act as an inhibitor of tyrosinase, thus diminishing the conversion of tyrosine to melanin.<sup>16</sup>

The foregoing series of reactions portrays in very simplified form some of the possible paths by which mutations resulting in enzyme dysfunctions may lead to genetic disease. An important underlying principle in



these concepts is that once a gene has mutated, the mutant allele is henceforth copied in its altered chemical form just as faithfully as the unmutated gene was formerly copied in its original chemical structure, thereby leading to the incorporation of the new allele into the pool of genes of the species.

### Environmental Effects

The metabolic blocks thus far discussed have a direct relation to the production of genetic disease. The relation, however, may not always be so direct, and the pathological consequences of a gene may manifest themselves only in specific environmental situations. It has recently been shown, for example, that a genetic deficiency of the enzyme glucose-6-phosphate dehydrogenase may cause an alteration in glutathione metabolism, resulting in an instability of reduced glutathione.<sup>17</sup> As a consequence of this instability, the red blood cells are liable to hemolysis following the ingestion of certain drugs such as naphthalene, primaquine, sulfanilamide, and nitrofurantoin. Thus an induced hemolytic anemia develops, which, though appearing to be environmentally produced, has a definite genetic basis. From a practical standpoint, an assay of blood cells for this enzyme may make it possible to detect those individuals who are drug-sensitive and would be harmed by these drugs.

There are innumerable potential interactions between hereditary and environmental influences. It should be kept in mind that not all inhibitors are under genetic control. In addition it should be recalled that many enzymes have a coenzyme, or prosthetic group, as a necessary adjunct to the protein core. Although the protein core is determined by a gene, the coenzyme is often of vitamin origin, and is thus, in man, at least, environmentally conditioned. It is conceivable, therefore, that an enzyme which in one individual is inhibited by a genetically produced substance may in another individual be inhibited by an environmentally provided agent. Similarly, an enzyme which in one person is rendered dysfunctional by a genetic defect of the protein core, or apoenzyme, may in another person be inacti-

vated by an environmental lack of the coenzyme. As a result of these and other exogenous effects, "phenocopies" may be produced, mimicking the genetic conditions. For example, nutritional siderosis appears to be a phenocopy of genetic hemochromatosis.

For many years I have predicted to my classes in medical genetics that the vitamin-deficiency diseases resulting from the nutritional lack of coenzymes would someday be found to be paralleled by similar diseases due to genetic deficiencies of the corresponding apoenzymes. This prediction has recently been fulfilled by the recognition of a genetic form of pellagra, designated as Hartnup disease.<sup>18</sup> Classic pellagra is, of course, the result of a nutritional absence of the coenzyme containing niacinamide. In the genetic form there is apparently a dysfunction of the corresponding apoenzyme involved in the metabolism of tryptophan. We may look forward to similar descriptions of genetic forms of scurvy, beriberi, and the rest. A genetic form of rickets, resistant to vitamin D and exhibiting hypophosphatasia, has been observed occasionally and is the subject of a careful recent study.<sup>19</sup> There is some evidence that it may prove to belong in the category of diseases resulting from a genetic defect in the renal tubular reabsorption mechanism, in this instance for phosphate.

Of course, the very fact that man requires vitamins in his diet in the first place is the result of gene-controlled enzyme dysfunctions apparently shared by all human beings. Most animals, for example, can synthesize L-ascorbic acid, by a series of steps, from D-glucose, and hence do not require ascorbic acid in their diets. Man and other primates, however, lack one enzyme in the series, and as a result are unable to accomplish the conversion of L-gulonolactone to L-ascorbic acid.<sup>20</sup> Ascorbic acid thus becomes a vitamin for man: vitamin C.

In spite of the fact that genes are normally identical from cell to cell of the individual, the cytoplasmic constituents of the cells need not be equivalent. The unequal distribution, during mitosis, of mitochondria, microsomes, and other inclusions can



result in the occurrence of identical genes in cytoplasmic environments, which differ in concentrations of enzymes, substrates, and other materials from tissue to tissue. It is well known that the effect of a gene can be altered considerably by the environment, without any change taking place in the gene itself. In this way a given gene may produce an effect in one tissue and not in another.

In like manner, one gene may exert its influence at an early stage of the development of the individual while another may not be effective until a later stage. The consequences of the gene that conditions congenital ichthyosis, for example, are clearly detectable in the embryo, while the effects of the gene for Huntington's chorea are apparent only in later life. The explanation for this phenomenon appears to rest on a firm biochemical basis. Enzymes often compete for the same substrate. Equilibria in reversible reactions require time to be achieved, and the establishment of an equilibrium may free a substrate for a new conversion by a different enzyme. The accumulation of by-products may slowly reach critical levels at which the by-products may act as new substrates or as inhibitors.

Moreover, a biological protein is a mixed population of molecules of very different ages, some being very new, while others may be months old. Correlated with these differences in age are differences in the conformation of the molecules, involving such things as the formation of dithio bonds and the substitution of amino acids.<sup>21</sup>

The descendants of a gene, then, may well be located in environments in the mature individual which are biochemically different from those in which the gene occurred in the embryo or the young organism. The effects of genic action could thus be quite understandably different at various times in the life history of a given individual.

It would seem to be a reasonable inference that genes do not exert absolute control over the presence or absence of specific enzymes but rather determine the potential development of particular enzymes and enzyme systems in particular environmental

situations.<sup>22</sup>

Thus the interlocking network of hereditary and environmental influences, which has long been obvious in the overt manifestations of traits and characteristics, is now seen to be equally operative in the basic biochemical and physiological processes of the cell itself.

### Dominance

The concepts which I have discussed up to this point have an important bearing on our understanding of many Mendelian phenomena which were originally but vaguely understood. In particular, such terms as dominance, recessiveness, and epistasis have become clarified in the light of biochemical considerations.<sup>22</sup>

In Mendel's original paper appears the statement (translated) "... those characters which are transmitted entire, or almost unchanged in the hybridization, and therefore in themselves constitute the characters of the hybrid, are termed the *dominant*, and those which become latent in the process *recessive*." Since Mendel's day these terms have been applied to the genes (Mendel's *elements*) themselves as well as to the characters.

For many years the fact that one gene of a pair may be dominant to the other was merely stated, not explained. Today a simple, reasonable explanation is possible in terms of biochemical activity. The primary action of a gene appears to be the control of the specificity of a substance such as an enzyme which is responsible for the catalysis of a particular step in the synthesis or degradation of some compound. A recessive mutation in a gene often results in the failure of the mutant gene to develop the enzyme.

Albinism in man has been shown to be dependent upon the homozygous condition of a gene which has been named *c*. Thus *cc* individuals are albinos, but both *CC* and *Cc* persons are normally pigmented. Gene *C* is thus said to be dominant to its allele *c*.

The enzyme tyrosinase is always identifiable in pigmented individuals, who have the gene *C*, but is not demonstrable in al-

binos, who lack this gene.<sup>23</sup> It would appear that *C* is responsible for the elaboration of tyrosinase, while its mutant allele *c* fails to develop this enzyme. It is equally apparent that one dose of *C* is grossly as effective as two. This latter fact is not surprising when it is realized that enzymes function by facilitating biochemical conversions all out of proportion to the amount of enzyme present. Since a particle of enzyme, once its quantum of catalytic action has been accomplished, dissociates itself from the resulting compound and is available for further catalytic activity, it is apparent that a small amount of enzyme may be sufficient to accomplish complete or nearly complete conversion.

It is logical to infer, then, that within a given genetic milieu one dose of *C* in a heterozygous (*Cc*) individual can elaborate sufficient tyrosinase to convert the available tyrosine to melanin. Since two doses of the gene (*CC*) could accomplish no more than this, the genotype *Cc* is as effective as the genotype *CC* in the development of melanin, and *C* is said to be "dominant" to *c*.

Consider your vitamin intake as an analogy. If, in your childhood, each of your two parents had provided you every day with your vitamin requirements, you might have had more than your minimum needs, but you would not have suffered from vitamin-deficiency diseases. If only one of your parents had supplied your needs, you would also have been free from deficiency symptoms. But if neither parent had provided any vitamins, the effects of the deprivation would have become manifest.

In man it has been demonstrated by means of phenylalanine tolerance tests that about half of the phenylalanine-oxidizing enzyme is in an inactive or ineffective form in those who are heterozygous for the gene for phenylketonuria.<sup>24</sup> Thus those who are carriers of the gene may be identified by a chemical test, even though outwardly they are quite normal. Other instances of genetic disease must be studied along these lines in order to test the general validity of this principle. Among the diseases, in addition to those already mentioned, in which the enzyme lack or deficiency has been specifi-

cally identified, and which are available for such study, are acatalasemia, alcaptonuria, constitutional hepatic dysfunction, at least one form of cretinism, galactosemia, several forms of glycogen disease, hypophosphatasia, and one form of methemoglobinuria.<sup>11, 25</sup>

In addition to behaving as obvious enzymes, the substances controlled by genes may in some instances act as antigens or inhibitors or hormones. It is tempting to postulate that the activities of even these substances may be but specialized forms of enzymatic activity.

In the case of antigens, where identification is made relatively simple by the ability of the substance to provoke the production of specific antibodies, the mutation of a gene responsible for an antigen nearly always results in the development of a different but equally specific antigen. Heterozygotes are thus readily recognizable by the use of appropriate antisera, and dominance disappears.

Between instances with no dominance and those with apparently complete dominance are all grades of the phenomenon. By means of various biochemical or immunological tests, and sometimes merely by keen observation, it is becoming increasingly possible to identify heterozygotes<sup>23, 26</sup> and thus to move both genetic prognosis and preventive medicine from a statistical to an individual basis. It is reasonable to presume that eventually, by appropriate, though often subtle tests, all heterozygotes will be identifiable. This, too, is an area of research that offers many challenges.

### Sequential Reactions

The occurrence of mutant individuals and the genetic study of these individuals and their families have on several occasions indicated the complex sequential enzymatic nature of a reaction originally supposed to be simple and direct. Conversely, the prior biochemical demonstration that a conversion involves several enzymes acting sequentially has suggested the possibility of several genetic types of a particular disease.

As an example of the first of these two principles I may call attention to the recent



work on the blood-clotting mechanism.<sup>27</sup> No longer can we accept the simple Morawitz theory of blood coagulation, in which it was assumed that prothrombin plus thromboplastin plus calcium ions results in thrombin, and that thrombin plus fibrinogen results in fibrin, which produces the clot. No longer can we automatically classify as hemophilia any genetic hemorrhagic disease with prolonged clotting time. The study of mutant individuals with bleeding disease has indicated that at least nine gene-controlled substances (presumably enzymes) are required for the thromboplastic conversion of prothrombin to thrombin, and that each of these trace proteins may become dysfunctional through mutation.

The superficially similar diseases involving the thromboplastic activity of the blood-clotting mechanism now include, in addition to classical hemophilia, Christmas disease, parahemophilia, deuterohemophilia, tetrahydroemophilia, SPCA deficiency disease, Hageman deficiency disease, Stuart deficiency disease, and factor X deficiency disease.

The second principle, involving the indication on biochemical grounds that genetically diverse forms of a disease may be expected to occur, is well illustrated in non-endemic cretinism with goiter. When the complex sequential enzymatic steps in iodine metabolism leading to the synthesis of thyroid hormones were worked out, it was apparent that the failure of any one of these steps was genetically possible. Careful investigation with this in mind<sup>28</sup> has revealed at least three types of the disease, and more may be expected to occur. In one of the described types, iodotyrosines cannot be produced from tyrosyl residues and iodide, apparently because of a dysfunction of an oxidative enzyme. In another type, iodotyrosines cannot be coupled into iodothyronines with sufficient speed. In the third type, a dysfunction of the enzyme dehalogenase results in a failure of iodotyrosines of deiodinate.

Similarly, at least four genetic dysfunctions are now known among the six enzymes necessary for the interconversion of glucose and glycogen, and these result in four distinct forms of glycogen disease.<sup>11</sup>

Other examples could be cited. It has in fact become very important to search for genetic heterogeneity in all disease by appropriate methods.<sup>29</sup> Therapeutic measures which may be of value in one genetic form of a disease are not necessarily successful in another, even though the overt symptoms of the two may sometimes be quite indistinguishable.

Studies of clinical features, age of onset, genetic mode of transmission, immunologic and biochemical patterns, and other techniques may aid in discovering genetic heterogeneity. The use of a paper chromatography and electrophoresis has become of paramount importance in studies of this nature. Most recently, the development of techniques for separating individual human cells and growing them as pure clones in tissue culture has opened up new possibilities along these lines, as well as in the important area of the analysis of mutation rates.<sup>30</sup>

### Structural Anomalies

It has long been my contention<sup>31</sup> that structural anomalies are just as subject to interpretation on the basis of enzyme dysfunctions as are the storage diseases and other obvious metabolic disorders. It should be possible by appropriate biochemical methods to discover errors of metabolism in the development of such conditions as lobster claw, polydactyly, achondroplastic dwarfism, and multiple exostoses, even though, apart from the morphologic aberrations, the subjects appear to be in good health. This conviction is shared by others,<sup>8,32</sup> and it is now possible to document it in some instances.

The first clear indication that a simple, gene-controlled enzyme dysfunction can be the basis for a structural anomaly came when evidence was found for a defect in glycolysis in the red cells in hereditary spherocytosis.<sup>15,33</sup> In this disease the red blood cells develop as spherocytes, lacking the expandable biconcave surfaces of the normal red cells. As a result, the cells are osmotically and mechanically fragile, and rupture easily as they move sluggishly into the spleen and are held there.



In the presence of the appropriate gene, one of the enzymes responsible for glycolytic metabolism fails to function properly. Since the gene involved is dominant, the basic defect in spherocytosis may well be the result of an inhibition rather than an absence of the enzyme. The enzyme affected appears most likely to be enolase, which in normal glycolysis converts 2-phosphoglyceric acid to 2-phosphoenolpyruvic acid. The latter substance in its subsequent metabolism provides energy in the form of adenosine triphosphate (ATP).

When enolase dysfunction occurs as a result of the activity of the implicated gene, the red cell can no longer build up adenosine triphosphate and maintain its usual store of chemical energy—energy necessary, among other things, for the maintenance of the integrity of the framework and the membrane of the cell.

Since the mature red cell appears to be the only cell of the body entirely dependent on glycolysis,<sup>15</sup> the defect would be most noticeable in this kind of cell, although the mutant gene must, of course, be present in all the cells of the body. Moreover, the red blood cell, being readily accessible for study, is of paramount importance as a tool for the analysis of many metabolic errors, even though the clinical effect is most noticeable in other tissues. For example, phosphogalactose-uridyl-transferase was implicated as the enzyme deficient or nonfunctioning in galactosemia by studies of the red blood cells of children suffering from the disease, and this was only later confirmed in regard to the cells of the liver, where most of the damage is actually done.<sup>24-30</sup>

### Metabolic Interrelationships

Incidentally, biochemistry makes strange bedfellows of genetic diseases. Hereditary spherocytosis is now seen to be intimately related biochemically to galactosemia and the glycogen diseases through glycolytic metabolism, just as albinism, phenylketonuria, tyrosinosis, and alcaptonuria are all, surprisingly, biochemically related to one another through the metabolism of phenylalanine, one of the amino acids. In spite of the close biochemical relationships, however, the

inheritance of such related disorders is quite independent and specific.

Since, of course, the metabolism of carbohydrates, fats, and proteins is closely integrated through the tricarboxylic acid cycle, it is well within the range of possibility that before too long the entire metabolic processes of man may be diagrammed as a single, elaborate biochemical pattern. Through the continuing study of more and more mutant individuals, each enzyme in the pattern will become identifiable in terms of the activity of a specific gene (a specific portion of a deoxyribonucleic acid molecule), and each genetic enzyme dysfunction will be related either to a mutation of that gene, resulting in a lack or modification of the enzyme, or to a mutation of a different gene, acting in such a way as to inhibit the activity of the enzyme.

The specification of the precise sequence of the steps in any reaction and the identification of precursors are enormously facilitated by the availability of mutants which block the various steps, since in the absence of such blocks the intermediary products are generally converted in the cell as rapidly as they are formed, and are thus difficult to detect. For example, the conjecture that phosphorylethanolamine is one of the long-sought, naturally occurring substrates of alkaline phosphatase was made possible by the availability of genetic instances of hypophosphatasia.<sup>37</sup>

Woven into the over-all pattern there will be, of course, environmental threads in the form of vitamins and other coenzymes, and of such things as hydrogen ion concentration, inorganic ion strength, temperature, substrate concentration, drugs, and infections.

Moreover, such a biochemical pattern of genetic health and disease will not be restricted to "physical" traits. Already several "mental" anomalies have yielded to biochemical analyses. Phenylketonuria and infantile amaurosis, among others, occur as the result of single-gene enzyme dysfunctions, as already mentioned. Other mental disorders are at present being actively investigated from this standpoint.

It should perhaps be pointed out here that the metabolism of metallic elements is also involved in human disease and may be genetically interfered with. Examples are the disturbances of iron metabolism in hemochromatosis and in methemoglobinuria, of copper metabolism in hepatolenticular degeneration, and of potassium metabolism in family periodic paralysis.<sup>11, 38</sup>

The delineation of the complete genetic and biochemical pattern of man that I have envisaged involves, of course, many difficulties; but it also offers many challenges and promises important rewards. To give just one example, it would be of the utmost value in the elucidation of the basic mechanisms underlying heart disease to be able to formulate the metabolic interrelationships that must exist between the lipids and the purines. The relative levels of uric acid, cholesterol, and phospholipids have been shown to be related to the development of atherosclerosis and coronary artery disease.<sup>39</sup> Although the metabolism of each of these substances may be independently controlled by the activities of known genes, as in gout, xanthomatosis, and the lipidoses, respectively, some basic, underlying, genetic mechanism must surely exist which enzymatically conditions their interacting biochemical activities. A step in this direction may have been taken with the recent demonstration that familial amyloidosis represents an inherited aberrancy in lipoprotein metabolism.<sup>40</sup>

The most promising basis for the ultimate formulation of a complete chemical-genetic pattern for human beings lies in the now apparent principle of the unity of biochemistry—a principle which states that the fundamental biochemical reactions are identical for all organisms thus far studied, from microbes to man.

### Practical Applications

The growing awareness that the primary activity of a gene is the control of the specificity of a substance such as an enzyme is adding immeasurably to the precision of the various practical applications of medical genetics. I have discussed these applications (diagnosis, treatment, prevention, and ge-

netic prognosis) elsewhere in detail<sup>41, 42</sup> and will add here only some suggestions regarding the emerging values of the principles discussed in this presentation.

It is clear that an understanding of the basic mechanisms of pathology is necessary for accurate differential diagnosis. In particular, the knowledge of the *basic genic action* involved will facilitate diagnosis, which is all too difficult in many diseases and aberrations at the present time. In those instances in which the biochemical steps between the primary activity of the gene and the resulting manifestation of the trait are few, the trait is likely to be readily diagnosable, and the primary activity may be subject to comparatively easy identification. But where the biochemical steps are numerous, with alternative pathways available, and with many opportunities for the impact of subtle or overt environmental influences, the resulting clinical picture may be complex and confused, and the basic genic action may be difficult to specify.

Another difficulty in the delineation of specific genic actions is to be found in those instances in which the effect of an individual gene is very slight. The effects which I have thus far discussed have been evident as marked phenotypic discontinuities. There are, however, genic activities in which the phenotypic effect of an individual gene is not readily discernible, consisting of only a very slight alteration of structure or function.

Where several or many such genes affect the efficiency of the same enzyme or process, however, their cumulative effects may be quite appreciable. Groups of genes with small but similar cumulative effects are referred to as polygenes, and they appear to be of importance in the genetically determined portions of quantitative variation, both normal and pathologic. Special methods are necessary for the analysis of the genetic and biochemical activities of polygenes.<sup>42</sup>

Each individual has a unique assembly of genes and will have his own mode of reaction to disease, whether it be presented through infection, trauma, stress, or mal-



nutrition, or wholly from within through biochemical error. The conviction that the genetic constitution is involved to a greater or lesser extent in all disease will serve as a stimulant to look beyond the secondary aspects of pathology and to search for the primary genic action in each case. Once this has been determined, both diagnosis and treatment will be facilitated. In this connection care must be taken that in as-saying correlations between biochemical observations and clinical manifestations, cause is not confused with effect.

It is well to recognize that there is at present one apparent limit to potential therapy in genetic diseases. Although inhibitors, whether genetically determined or not, may be subject to environmental control, and although coenzymes and substrates may be provided nutritionally and in other ways, the basic protein enzymes can be gotten into a cell only by building them there. The building process is determined by the presence of appropriate genes.

As a consequence there would appear to be a residue of diseases, resulting from mutant gene-controlled absences of requisite, potent enzymes and apoenzymes, for which there is at present no apparent "cure" in the usual sense. The ingenuity of biochemists and physiologists may in the future, however, make it possible to devise alleviation even for these fundamental errors.

The increasing ability to identify carriers of mutant genes will add to the precision of practical applications in prevention and in genetic prognosis, by bringing to light precursory, preclinical and constitutional stigmata which can be employed in these applications. The elucidation of indices of predisposition, whatever their origin, can be of service in identifying those environmental factors which may act as precipitating causes of clinical manifestations. Such identification may well prove to be of primary value in the ultimate control of disease.<sup>43</sup>

The prospects for the eventual understanding of human health and well-being grow ever brighter, and to no one is more appreciation due for his fundamental con-

tributions to this field than to Sir Archibald E. Garrod.

## REFERENCES

1. A. E. Garrod, *Lancet* **II**, 1, 73, 142, 214 (1908).
2. L. H. Snyder, "Frontiers in genetics," in *Frontiers in Medicine*, I Galdstone, Ed. (Columbia University Press, New York, 1951), chap. 3.
3. H. J. Muller, *Science* **66**, 84 (1927).
4. G. W. Beadle, "Genes and the chemistry of the organism," in *Science in Progress*, ser. 5, G. A. Baitsell, Ed. (Yale Univ. Press, New Haven, Conn., 1949).
5. N. Herndon, "Genetics of the lipidoses," in *Genetics and the Inheritance of Integrated Neurological and Psychiatric Patterns*, D. Hooker and C. C. Hare, Eds. (Williams and Wilkins, Baltimore, Md., 1954), chap. 15.
6. T. Kosaki, T. Ikoda, Y. Kotani, S. Nakagawa, T. Saka, *Science* **127**, 1176 (1958).
7. C. E. Dent and G. R. Philpot, *Lancet* **I**, 182 (1954).
8. C. E. Dent, *Am. J. Med.* **22**, 671 (1957).
9. A. DeVries, S. Kochwa, J. Lazebnik, M. Frank, M. Djal-detti, *ibid.*, **23**, 408, (1957); H. Harris and E. B. Robson, *ibid.* **22**, 774 (1957).
10. G. T. Cori and C. F. Cori, *J. Biol. Chem.* **199**, 661 (1952).
11. H. Harris, "Genes and enzymes in man," in *Novent' anni delle leggi Mendelliane* (Istituto "Gregorio Mendel," Rome, 1956), pp. 206-219.
12. W. E. Knox and D. Y-Y. Hsia, *Am. J. Med.* **23**, 687 (1957).
13. J. V. Neel, *Ann. Human Genet.* **21**, 1 (1956).
14. V. M. Ingram, *Nature* **180**, 326 (1957).
15. T. A. J. Prankerd, *Am. J. Med.* **22**, 724 (1957).
16. M. Miyamoto and T. B. Fitzpatrick, *Nature* **179**, 199, (1957).
17. R. T. Gross, R. E. Hurwitz, P. A. Marks, *J. Clin. Invest.* **37**, 1176, (1958).
18. D. N. Baron, C. E. Dent, H. Harris, E. W. Hart, J. B. Jepson, *Lancet* **II**, 421 (1956); J. B. Jepson, *Biochem. J.* **64**, 14P (1956).
19. R. W. Winters, J. B. Graham, T. F. Williams, V. W. McFalls, C. H. Burnett, *Medicine* **37**, 97 (1958).
20. J. J. Burns, *Nature* **180**, 553 (1957).
21. F. Haurowitz, *J. Cellular Comp. Physiol.* **47**, suppl. 1, 1, (1956).
22. L. H. Snyder, *Sci. Teacher* **24**, 375, 402 (1957).
23. J. V. Neel and W. J. Schull, *Human Heredity* (Univ. of Chicago Press, Chicago, Ill., 1954).
24. D. Y-Y. Hsia, K. W. Driscoll, W. Troll, W. E. Knox, *Nature* **178**, 1239 (1956).
25. I. M. Arias and I. M. London, *Science* **126**, 563 (1957).
26. D. Y-Y. Hsia, *Am. J. Human Genet.* **9**, 98 (1957).
27. J. B. Graham, *ibid.* **8**, 63 (1956).
28. J. B. Stanbury and E. M. McGirr, *Am. J. Med.* **22**, 712 (1957).
29. L. H. Snyder and P. R. David, "Pentetrance and expression," in *Clinical Genetics*, A. Sersby, Ed. (Butterworth's, London, 1953), chap. 2.
30. T. T. Puck, R. I. Marcus, S. Cieciora, J. Exptl. Med. **103**, 273 (1956).
31. L. H. Snyder, "The genetic approach to human individuality," in *Centennial Volume (AAAS, Washington, D.C., 1949)*, pp. 62-73.
32. V. A. McKusick, *Am. J. Med.* **22**, 676 (1957).
33. H. Tabachian, K. I. Altman, L. E. Young, *Proc. Soc. Exptl. Biol. Med.* **92**, 712 (1956).
34. F. Eisenberg, Jr., K. J. Isselbacher, H. M. Kalckar, *Science* **125**, 116 (1957).
35. A. Holzel, G. M. Komrower, V. Schwarz, *Am. J. Med.* **22**, 703 (1957).
36. V. Schwarz, L. Golberg, G. M. Komrower, L. Holzel, *Biochem. J.* **62**, 34 (1956).
37. D. Fraser, *Am. J. Med.* **22**, 730 (1957).
38. A. G. Bearn, *ibid.* **22**, 747 (1957).
39. M. M. Gertler and P. D. White, *Coronary Heart Disease in Young Adults* (Harvard Univ. Press, Cambridge, Mass., 1954).
40. J. G. Rukavinia, W. D. Block, C. E. Jackson, H. F. Falls, J. H. Carey, A. C. Curtis, *Medicine* **35**, 239 (1956).
41. L. H. Snyder, *Bull. N. Y. Acad. Med.* **22**, 566 (1946).
42. ———, "Present knowledge of human heredity, and its applications," in *Science in Progress*, ser. 9, G. A. Baitsell, Ed. (Yale Univ. Press, New Haven, Conn., 1955), chap. 1.
43. P. R. David and L. H. Snyder, "Genetics and disease," in *Proc. 2nd Natl. Cancer Conf.* (Am. Cancer Soc., New York, 1954), pp. 1128-1138.

University of Hawaii, Honolulu, Hawaii



# A Community Approach to the "Senior Citizens" Problem

JOHN W. DeVORE, M.D.

OSMA Committee on  
Health Care of the Aged

LEAD BY A GROUP of Oklahoma City physicians, a committee of over sixty community leaders recognized the difficult problems confronting the senior citizen segment of the population and planned a retirement village to answer the growing needs of the aged and retired. Senior Citizens, Incorporated, and its proposed "Model Village For Senior Citizens," illustrate a unique *community* approach to a *community* health problem—that is being carried out without the paternalistic direction of federal planners.

## The Problem

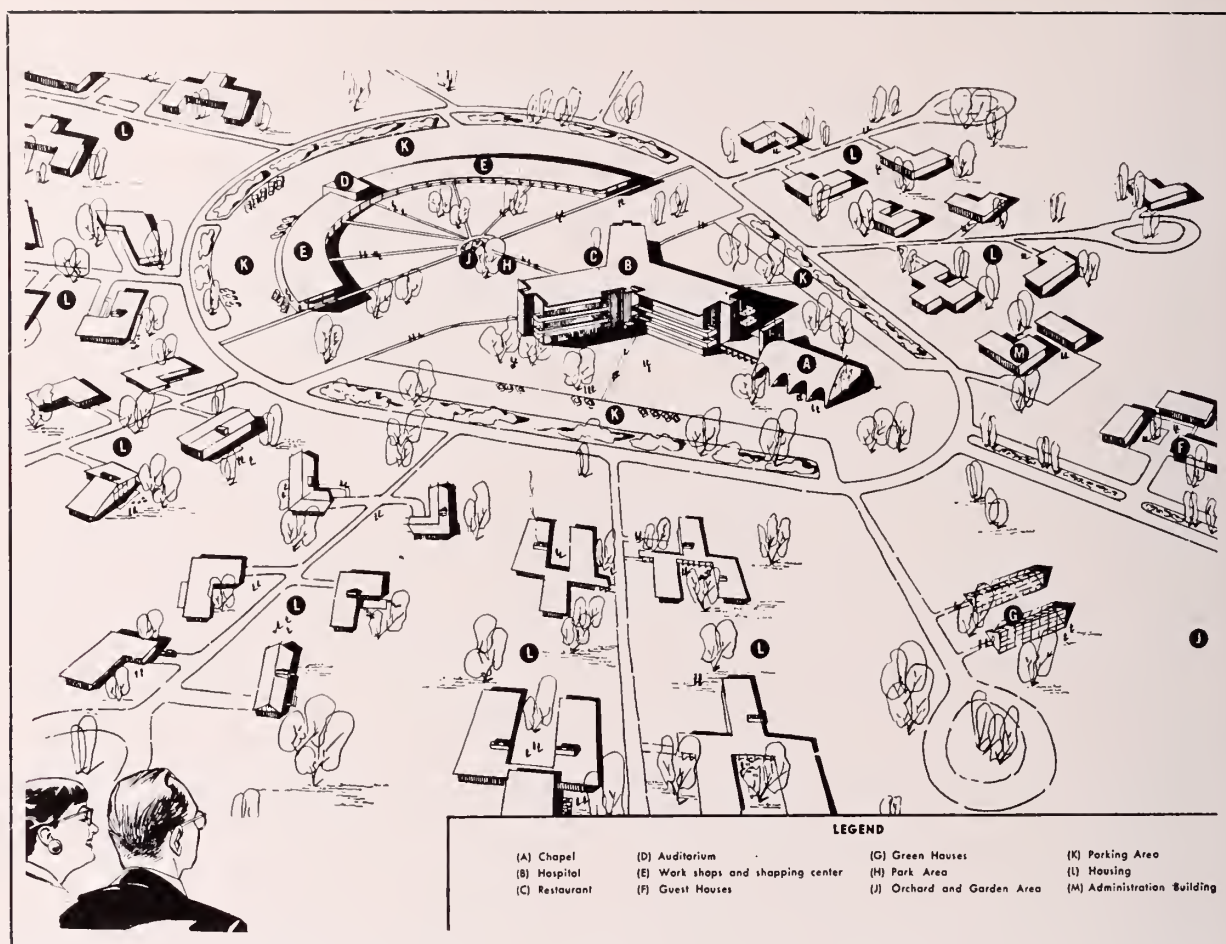
Four years ago, a group of twelve, comprised of physicians, ministers, and community leaders, met to discuss the problem of aging which presented itself in Oklahoma City and in Oklahoma generally. It was recognized that Oklahoma City alone already had more than 30,000 people over sixty-five and that this figure would grow to 40,000 by 1970, according to estimates of population growth by the local Community Council. It was further recognized that, although there was a growing number of widows and widowers, couples have an average of twenty years longer life together today than they had fifty years ago. A decision was there-

fore made that any plans for the care of senior citizens should include adequate provisions for couples as well as for single individuals.

With these facts in mind, and with recognition of the many medical, economic, and social problems involved, the Council of Churches of Oklahoma City was asked to organize a planning committee to determine what should be done. Meanwhile, it was learned that the Altrusa Club, with Fannie Lou Leney, M.D., as chairman of their committee on aging, had been studying the problem for several years. The two groups combined efforts and worked with physicians and other church groups in the formation of the Senior Citizens Committee, the pilot group which later established Senior Citizens, Inc.

Since the Senior Citizens Committee was formed three years ago, the group has studied two hundred church and private homes for senior citizens and has investigated many rehabilitation hospitals and various church, city and state programs for care of the aged. From such research, the present plans have been formulated.

These plans call for the construction of a retirement village on a 320 acre tract at



MODEL VILLAGE FOR SENIOR CITIZENS

the edge of Oklahoma City. The village will represent a well-balanced community and will include the following: a rehabilitation and convalescent hospital; sheltered workshops; a shopping area; a recreation building as well as parks and other recreational facilities; guest houses for visitors; a green house and garden area; a chapel; and an administrative area to be built in a central location. Surrounding this area will be homes for individuals who are retired. The suggested master plan which is used as an illustration was drawn by Mr. John Turnbull of the Turnbull-Mills-Benham Architects and Engineers.

A plan of community action by local groups is the best answer to federal control. The maintenance of human dignity and self respect yields a greater sense of security to the individual than government assistance checks. Demonstration of the productivity of the "aged" is the best rebuttal to

mandatory retirement. Destructive social legislation is best defeated by providing a constructive solution to the problem rather than by a negativistic approach to the legislation. Senior Citizens, Inc., is a positive solution of a major social problem and is therefore worthy of the active and vigorous support of the medical profession.

#### Medical and Rehabilitation Facilities

A general hospital is not anticipated in the area, but rather a convalescent and rehabilitation facility. Various medical centers which have provided rehabilitation facilities have shown that over sixty per cent of the disabled elderly individuals, who in the past have been confined to their beds or to their rooms, can be rehabilitated to the point that they can at least care for themselves. Many return to gainful employment. Other individuals are made less dependent. A physician from one chronic disease hos-



pital reported that, prior to the initiation of rehabilitation, ninety per cent of the patients entering the hospital died there. With the new program, ninety per cent of those who enter are discharged able to care for themselves. In one home for the aged which was visited, there were fifty-eight occupants, all of whom had illnesses which would ordinarily place them in the completely disabled classification. Not one bed patient was present, primarily due to excellent physical therapy and occupational therapy.

The hospital is therefore being planned to care for short term minor illnesses, for convalescent care following hospitalization in a general hospital, and for rehabilitation of disabled individuals. The physical therapy, occupational therapy and recreational therapy provided to the hospitalized patients will also be available on an out patient basis to residents of the village and to individuals needing such care from surrounding communities.

One of the foremost fears of many elderly individuals is what would happen if an illness developed or an accident occurred in the home. When minor illnesses occur among individuals living in the village, visiting nurses will provide care in their own rooms or apartments when that is deemed advisable. In addition, there will be a call system for emergencies so that someone will be available night and day if an accident or sudden illness occurs in the individual's own quarters.

The direction of the care of each individual will be left entirely to the discretion of that individual's own private physician.

The hospital facilities are being planned by a committee having as chairman, Gregory E. Stanbro, M.D., with the following committee members: Wann Langston, M.D., Ella Mary George, M.D., Shelby Gamble, M.D., Fannie Lou Lenney, M.D., Arthur Elliott, M.D., James F. Hammarsten, M.D., Joseph McCain, Warren Young, J. J. Garver, the Reverend Tom Carter and the Reverend T. P. Haskins.

#### **Occupational Facilities**

Perhaps the greatest psychological hurdle

which a retired individual has to cross is the idea that he is no longer a productive member of society. For some individuals, a hobby is adequate to meet their needs in this field, and their retirement income is adequate so that gainful employment is no longer necessary. The sheltered workshops will provide the facilities for such individuals.

Other individuals have a great need for additional income or have the psychological approach that, unless their employment is gainful, they are no longer of use in the community or to themselves. There has been a growing need in the last few years for business and industry to find organizations who will accept contracts for piece-work and for special mailings and services. Through such contracts the sheltered workshops will supplement the income of the individual and permit him to work the number of hours and on the type of work which will meet his physical and mental capacity. Recent studies indicate that individuals in their seventies have an I.Q. equivalent to individuals in teenage group. To go with this they frequently have special skills and experience which make them invaluable in performing specialized work. For such individuals to enter forceful unproductiveness, is equally wrong for the individual and for society.

#### **Recreation**

An auditorium for lectures, concerts and major social functions is planned for the center of the sheltered workshop and shopping area. In addition, numerous types of both outdoor and indoor recreational facilities are being planned for use by residents of the village and their visitors.

#### **Shopping Facilities**

The village will be so large that, of necessity, any existing shopping area would be some distance away from the homes. Shopping facilities are being planned for the central area so that the basic needs of the residents can be met. A drugstore, clothing store, gift shop, grocery store and other shops to meet the basic needs of the residents are included. The shopping area will not be elaborate, so that, except for basic needs, the residents of the village would utilize shopping areas elsewhere in the city.





#### TYPICAL LIVING AREA

- (A) Community House
- (B) Duplex Apartment House
- (C) Efficiency Apartment House

#### Restaurant

Attached to the hospital will be a restaurant or cafeteria for hospital personnel and ambulatory patients. It will be built in such a manner that residents of apartments and cottages who wish to have occasional or frequent meals away from their own home would be able to obtain such service within the immediate vicinity.

A committee has been formed to coordinate the development of occupational, recreational, shopping and restaurant facilities and to also work with the Hospital Facilities Committee in planning all aspects of an effective rehabilitation program. The members of this committee are: J. R. Stacy, M.D., Chairman; Hayden H. Donahue, M.D.; Shelby Gamble, M.D.; Herbert Kent, M.D.; and Wendell Lillenas, M.D.

#### Housing

A goal has been set to provide housing for five hundred individuals within the next five years. The first 160 acre development

is adequate space for an eventual two thousand individuals, with the second 160 acres being available for future expansion. A master plan for the entire area is being prepared to permit zoning and minimum standards of construction. As a general principal, housing will be a one-floor plan with construction embodying all possible safety features necessary for the prevention of home accidents and injuries.

Community housing units will provide private rooms with private baths for individuals, or small suites of rooms for an individual or couple. These community houses will have common dining facilities and multiple living rooms to permit various types of activity.

An informal park-like setting for all of the homes will also make possible limited access streets, preventing through traffic. A typical living area is shown in the suggested sketches by Mr. Tom Sorey of Sorey, Hill and Sorey. A housing unit, such as that illustrated, would accommodate thirty to

fifty individuals.

Most of the housing is to be built by church and civic organizations who wish to provide for their own members who are retired. The admission to such residences would be controlled by the organization building the homes. Senior Citizens, Inc., would build homes in one area to be leased to interested organizations so that individuals from small denominational groups, or from groups which do not have a housing area, would not be excluded. A multi-floored apartment building has been suggested to be built in this area. The committee handling this aspect of the work is comprised of: Earl Nichols, Chairman, E. W. Lippert, W. J. Mitchell, Tom Sorey, W. D. "Bill" Morris, Truett Coston, Warren Young, J. Gilbert Barker, John Turnbull, Joseph McCain, Jack R. Mills and Fannie Lou Leney, M.D.

#### **Senior Citizens, Incorporated: Legal and Financial Structure**

To facilitate the development of this retirement village, a foundation has been chartered as a non-profit corporation of Oklahoma under the name Senior Citizens, Inc. Attorneys for Senior Citizens, Inc. are now negotiating for the purchase of a specific tract of land on the Northwest Highway, situated on the edge of Oklahoma City. Mr. Ben Head and Mr. Duke Duvall have contributed innumerable hours in the formulation of the articles of incorporation and the by-laws of Senior Citizens, Inc. They have also assisted with the multitudinous legal questions which have arisen in the early formative days of the foundation.

The financing of the village will be, in large part, through self-liquidating, long-term loans. An effort is being made to raise the basic funds needed for purchase and initial development of the land as well as to obtain money from individuals who have a primary interest in the development of such facilities. Anticipated cooperation should make a public fund drive unnecessary. Many sources of funds are available when a project for retired individuals is once under way.

It has been the basic premise of the committee that facilities already present in Oklahoma City should not be duplicated and that the village should supplement the services to senior citizens living in Oklahoma City and surrounding communities. To plan the raising of funds, and to coordinate the facilities of the village with other facilities for senior citizens in Oklahoma City, a coordinating committee, under the chairmanship of Mr. John C. Wegner, has as its members the following: Mr. Bob Bryan, Mrs. George Townsend, Mrs. Douglas Yeager and Fannie Lou Leney, M.D.

#### **Religious Activities**

It has been recognized that the need for a deep religious faith is present in all people of all ages, but that the need is even greater in this age group. The village will have at its center an inter-denominational chapel. Every effort will be made to maintain the close contact of the individual resident with his own church after he moves into the village, but where that is not possible, he can attend religious services of his own faith in the chapel.

#### **Summary**

All of us recognize the growing needs of our country in the field of services to individuals who are retired. The plan herein presented is an attempt at a constructive solution to some of the problems involved. It is the feeling of the members of the subcommittees and of the many other individuals who have contributed their time to the Senior Citizens committee that the real solution to problems comes from local planning and administration. The maintenance of the dignity, self-respect and independence of the individual is of primary importance. Every possible facility to help each person look forward to a physically and mentally active and productive future is being incorporated in the plans which, in part, have been outlined in this article.

*In the May issue, this series of articles sponsored by the O.S.M.A. committee will continue in the form of an analysis of nursing home problems of our state.*



## First National Youth Conference on the Atom

A national Youth Conference on the Atom, the first such meeting of high school science students and teachers to discuss the peaceful uses of nuclear energy, will be held in Atlantic City, N. J., April 30-May 1.

Approximately 500 junior and senior high school science students and teachers will be sponsored in attendance at the conference by 60 or more electric utility companies throughout the country.

Organizations cooperating in the conference include the American Association for the Advancement of Science, Atomic Industrial Forum, Future Scientists of America Foundation, National Science Foundation, National Science Teachers Association, and Science Clubs of America.

The two-day conference is being held, sponsors said, to inform students and teachers about the many uses of the peacetime atom, and to help advance interest in the study of science. Among the speakers is Doctor John Laughlin, chief of the Division of Physics at Sloan-Kettering Institute for Cancer Research, who will speak on the uses of the atom in medicine.

The students and teachers attending the conference will tour the Atomic Energy Commission's new 1959 version of its major "Atoms for Peace" exhibit, which will visit Atlantic City during the week of the conference as the first stop in a nation-wide tour. In addition, the Atomic Energy Commission and more than 25 other organizations will have exhibits at the conference site.

Students who will attend the conference will be chosen in cooperation with local school authorities in a variety of ways, ranging from selection by school principals to essay contests and special examinations. They will be selected for their excellence and interest in science, particularly physics.

## Public Apathy Threatens Polio Gains

Recent progress against paralytic polio is threatened by the fact that only half of the U.S. population under the age of 40 has had the full series of Salk inoculations, Health Information Foundation declared recently.

In its monthly statistical bulletin, *Progress in Health Services*, the Foundation pointed out that the number of cases of paralytic polio rose in 1958 after declining each year since the introduction of the Salk vaccine in 1955.

"Public apathy about the injections may be an unfortunate result of scientific progress," said George Bugbee, Foundation president. "Recent advances against polio have been so striking that many people may look upon it as a disease of the past."

Up to a few years ago, the Foundation reported, "polio was a wide-spread and constantly increasing danger, and little could be done to control it." The number of cases in this country rose steadily through the first half of the century, reaching a peak of almost 58,000 in 1952.

With the coming of the Salk vaccine, however, the incidence dropped sharply, and in 1957 only 5,500 cases (including 2,500 paralytic) were reported. "The evidence is now overwhelming," said the Foundation report "that the full series of three or more Salk inoculations provides a high level of protection from paralytic polio."

"Provisional figures for 1958 indicate that the number of cases rose to more than 6,000, including 3,100 paralytic cases. Most of last year's victims were persons who had not been fully vaccinated, and local epidemics were concentrated among the less advanced socio-economic groups, where levels of vaccination were lowest.

"The major problem today is to bring the benefits of the Salk vaccine to the entire



population, especially those under age 40," the Foundation stated. Estimates by the National Foundation for the end of 1958 indicates that 41 million persons in this age group had not been vaccinated at all, and an additional 16 million were incompletely vaccinated.

"Only 57 million—one-half of the population of this age group—had had the full series of three or more shots. Vaccinations were distressingly few during 1958. The need is sharpest at the preschool age and at 20-39, where only 45 and 30 per cent, respectively, are fully vaccinated."

Medical authorities suggest that the Salk vaccine protects against polio for at least three years and possibly longer, the Foundation reported. Moreover, "no break in the safety of the vaccine has shown up since 1955."

Current research efforts cited by the Foundation include an attempt to develop a more powerful vaccine that can be taken by mouth. But "universal immunization" with even the present vaccine could signal "the virtual end of mankind's most destructive diseases."

## Ob-Gyn Schedules Examinations

The American Board of Obstetrics and Gynecology have scheduled examinations (Part II), oral and clinical for all candidates for May 8 through 19, 1959 at the Edgewater Beach Hotel, Chicago, Illinois. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participate in the Part I Examination will be notified of their eligibility for the Part II Examinations as soon as possible.

The deadline date for the receipt of new and reopened applications for the 1960 examinations is August 1, 1959. Candidates may submit their applications at any time before that date and are urged to do so by writing to Robert L. Faulkner, M.D., Secretary-Treasurer, 2105 Adelbert Road, Cleveland 6, Ohio.

## Oklahoma Pharmacy Dean Honored by Drug Company



An oil painting of Dean Clark was presented to the College by Wyeth Laboratories, during the Annual Pharmacy Seminar held at the Lockett Hotel, Norman. The presentation was made by H. A. Dicken, Wyeth district sales manager. Roy F. Spreter, noted artist, executed the portrait.

In his remarks, Mr. Dicken cited Doctor Clark's 38 years of widespread experience in almost every phase of pharmacy, and depicted the Dean as "... a distinguished member of the teaching profession, and a common rallying point for every branch of pharmacy."

Mr. Dicken related to the audience many of Dean Clark's accomplishments, including his service as editor of both the *Wisconsin Druggist* and the *North Carolina Journal of Pharmacy* and his authorship of "Orientation In Pharmacy," a book designed to guide pharmacy students in their selection of a position after graduation.

He cited Doctor Clark's adaptation of the College of Pharmacy to the community's needs, his pioneer role in the introduction of hospital and veterinary pharmacy courses to the College's curriculum, and his experience in retail pharmacy and drug manufacturing.

## Ethics and Exigencies

Does the Industrial Physician have any obligation to care for non-industrial medical problems? What yardstick may one use to delineate the frequently disputed boundaries between industrial and private practice? Granted that there will never be complete agreement as to just where one takes up and the other leaves off, a few fundamental concepts will help in the majority of cases. The most important guidepost on this, at times, difficult road of decision is recognition of the fact that the structure of medical ethics is based primarily on welfare of the patient. The second is appreciation of the fact that the industrial physician complements and does not attempt to supplement or compete with the family doctor. There are a number of areas that are certainly not "industrial", yet properly require a measure of attention from the industrial physician, the degree of such attention being determined on the merits of each case. To illustrate; few would question the obligation of the industrial medical department to furnish immediate care to the employee brought in with a "coronary". When available, oxygen, analgesics and whatever else is needed should be administered and the employee cared for until safe transition can be made to the hospital and the care of his

personal physician. How far should the industrial physician go in *diagnosing* a complaint that is not felt to be of industrial origin? If the presenting complaint is one that *might* portend an immediately serious condition which could be confirmed or ruled out by a few simple procedures, then those may well fall into the province of the industrial physician. Here chest pain or abdominal pain of doubtful origin are good examples. A few searching questions, examination and selected lab work may be done expeditiously and if findings warrant, referral made to private physician for further study and/or treatment. Most important, smooth transition to the personal M.D. is made when the industrial physician discusses the findings with him. Unless this is done in such cases, the employee may often, to his detriment, fail to pursue the matter further.

Finally, the industrial physician has an obligation in the field of preventive medicine. The minor non-industrial conditions for which he is consulted are legion. Frequently a word of advice or simple first aid averts more serious trouble with absenteeism and its economic penalties. In other cases the need for referral to the family doctor is readily recognized and effected to the benefit of all concerned.

Prepared by OSMA Committee on Occupational Medicine

## First Conference on Handicapped Children Held

The First Annual Conference on Handicapped Children was held March 13 and 14 in Oklahoma City.

The purpose of the conference was to bring into one meeting all governmental, religious, non-profit, and private agencies or organizations that are interested in the problems of handicapped children, with the hope that there could be a greater correlation of the efforts of all parties in developing higher standards of care for this group. The conference adopted by-laws and elected an eighteen member board of directors.

Guest speakers were George H. Schade, M.D., Director of Mental Health Unit, Department of Pediatrics, University of Cali-

fornia Medical Center, San Francisco; A. R. Shands, Jr., M.D., Medical Director, Alfred I. duPont Institute of Nemours Foundation, Wilmington, Delaware; Eric Denhoff, M.D., Medical Director, Meeting Street School for Handicapped Children, Providence, Rhode Island; and Romaine P. Mackie, Ph.D., Chief, Exceptional Children and Youth Division, Office of Education, Department of Health, Education and Welfare, Washington, D.C.

The conference was under the sponsorship of the Oklahoma Chapter of the American Academy of Pediatrics, the Oklahoma Orthopedic Society and the Nemours Foundation of Wilmington, Delaware and was coordinated by the Oklahoma City Junior League. Over 600 person from all sections of Oklahoma attended the conference.



## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**COMMISSION ON MEDICAL CARE PLANS AND LAWS RELATING TO SUCH PLANS**—The Commission on Medical Care Plans which was appointed by the Board of Trustees in 1954, submitted its report to the House of Delegates at the Clinical Meeting in December 1958. The House decided to defer action on the report until the Annual Meeting in June 1959. At the same time the House requested the constituent associations to arrive at some decisions in regard to the following two questions and submit them to the AMA's Executive Vice President sixty days in advance of the June 1959, Annual Meeting:

"1. *Free Choice of Physician*—Acknowledging the importance of the free choice of physician, is this concept to be considered a fundamental principle, incontrovertible, unalterable, and essential to good medical care without qualification?

"2. *Closed Panel Systems*—What is or will be your attitude regarding physician participation in those systems of medical care which restrict free choice of physician?"

**MEDICOLEGAL MEETINGS** — In the last issue of "The Citation" the dates for the regional medicolegal meetings to be sponsored by the AMA were incorrectly listed. The meetings will be held on March 20-21 in Washington, D.C.; April 3-4 in Cleveland, Ohio; and on April 17-18 in Salt Lake City.

The programs for the meetings have not been completed as yet; however, some of the subjects that will be discussed are: Medical and Legal Problems Involved in Narcotic Addiction; Traumatic Neurosis; the Approach of Medicine and the Law to Contingent Fees; Res Ipsa Loquitur in Professional Liability

Cases; Impartial Medical Testimony; and the Classic Method of Cross Examining an Expert Medical Witness.

Several outstanding speakers have already agreed to participate. Included are Rufus King, Washington, D.C.; R. Crawford Morris, Cleveland, Ohio; Truman Rucker, Tulsa, Oklahoma; Father Robert F. Drinan, Dean, Boston College Law School; Irving Goldstein, Chicago, Illinois; and Doctor Robert H. Felix, Bethesda, Maryland.

At each of the meetings the sessions will be presented for half a day on Friday and a full day on Saturday. Luncheon will be served on Saturday, with no planned program for Friday night. The registration fee for each conference will be \$5.00, to cover the cost of the luncheon and a copy of the proceedings. Advance registrations should be mailed to the Law Division, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

**MEDICAL PROFESSIONAL LIABILITY** —This was a medical professional liability suit against a physician for the death of a patient from bronchial pneumonia with chicken pox as the antecedent cause. During one of his visits to the patient, the physician stated that "This is a hospital case but they won't take her on account of this other" (the chicken pox). After her death, the physician stated: "I should have put her in the hospital." The California District Court of Appeals held that: "The two statements taken together clearly make a case sufficient to give to the jury" and accordingly reversed the judgment of a non-suit.

*Sheffield v. Runner*, 328 P. 2d 828  
(Calif., Aug. 19, 1958).

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER

### POSTGRADUATE PROGRAM

Oklahoma City, Oklahoma

#### Individual Postgraduate Courses

#### FIFTH ANNUAL COMBINED SURGERY, RADIOLOGY, PATHOLOGY SYMPOSIUM—May 8 and 9

Diagnosis and Treatment of Thyroid Diseases.

Sponsored by the Oklahoma Association of Pathologists, Oklahoma Association of Radiologists and Oklahoma Chapter of American College of Surgeons. Guest participants of national reputation in surgery, radiology and pathology will participate.

#### OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—May 22

Two guest lecturers and presentation of original papers by members of the various house staffs will highlight this program. Participating hospitals are: Hillcrest Medical Center, Tulsa, St. John's, Tulsa; McBride, Mercy, St. Anthony, University, Veterans Administration, Wesley, Oklahoma City; Central State Hospital, Norman.

#### SERIAL POSTGRADUATE COURSE

##### Postgraduate Division

#### UNIVERSITY OF OKLAHOMA MEDICAL CENTER

Oklahoma City, Oklahoma

1958-1959

May 13 — Pediatrics — Antimicrobial Therapy and Treatment of Infectious Disease in Childhood.

June 10—Surgery—Herniae.

Designed so physicians may attend four hours of formal instruction in the above fields while spending only one-half day from their office, this series is approved for credit by the Oklahoma Academy of General Practice. Time will be 3:30 to 8:30 p.m. on the Second Wednesday of each month, September through June. Registration is \$3.00 per session or \$25.00 for the entire series.

Further information concerning the individual and serial courses may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N. E. 13th Street, Oklahoma City, Oklahoma.

#### AMERICAN GOITER ASSOCIATION

April 30, May 1, and 2

Drake Hotel

Chicago, Illinois

The program for the 1959 meeting of the American

Goiter Association will consist of papers dealing with the thyroid gland, its physiology, pharmacology, pathology and therapy.

Further information is available by writing to John C. McClintock, M.D., Secretary, 149½ Washington Avenue, Albany 10, New York.

#### 13th ANNUAL

#### ROCKY MOUNTAIN CANCER CONFERENCE

July 22-23, 1959

Brown Palace Hotel

Denver, Colorado

The Rocky Mountain Cancer Conference will be held at the air conditioned Brown Palace Hotel in Denver, July 22 and 23, 1959. Further information concerning the program and reservations may be obtained from Rocky Mountain Cancer Conference, 835 Republic Building, Denver 2, Colorado.

## 53rd Annual Meeting

of the

# Oklahoma State Medical Association

April 20, 21, 22, 1959

Mayo Hotel

Tulsa, Oklahoma

# Organization News

## Service Contract for Old Folks To Highlight Annual Meeting

Highlighting policy decisions to be made at the Annual Meeting of the House of Delegates on April 19, will be a joint report from OSMA's Blue Shield Liaison Committee and the Health Care of the Aged's subcommittee on Insurance and Retirement. President Mohler has asked these groups to evaluate the AMA's request for the development of a service-type pre-payment program for the over-65-age-group.

### The Big Picture

At the AMA Interim meeting in Minneapolis, the House of Delegates adopted a report urging the development of special insurance and pre-payment programs for senior citizens with "modest resources and low family income." The report urged the profession to "continue to assert its leadership and responsibility for assuring adequate medical care for this group of our citizens."

More specifically, the report asked all constituent and component medical societies to "... expedite the development of an effective voluntary health insurance or pre-payment program for the group over 65 with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group, which will permit the development of such insurance and prepayment plans at a reduced premium rate."

In response to this report, the National Association of Blue Shield Plans issued a policy letter supporting the practicability of establishing an in-hospital program, with full-service fees to be offered below certain income ceilings as established in conformity with the economic level of the area to be served.

The AMA Committee agreed with the Blue Shield proposal, with the exception that it feels a major effort must be made to provide an alternative to hospitalization. It was agreed by the Committee that every effort should be made to provide for a speci-

fied number of office and home calls per year and that a provision for payment of calls to nursing homes should be included as an alternative to hospitalization.

As evidenced by the recent introduction of several commercial insurance programs for senior citizens, private industry and the medical profession are attempting to take immediate action designed to thwart the threat of the proposed Forand Bill. This bill, now before the House Ways and Means Committee, will provide medical, hospital, dental and nursing home care, through the Social Security system, for about fourteen million persons.

Some medical leaders, however, are looking beyond the immediate danger of the Forand Bill and foresee increasing problems regarding the health care of the aged in the years to come. It is apparently generally agreed that private industry must make some provision to take care of this growing segment of the population, or the government will surely pass some type of provisional legislation.

To illustrate the concern being expressed in Washington circles, the President has ruled that the Federal Council on Aging should be expanded, given full cabinet status, ordered to make a prompt study of the needs of the aged and determine how government can help meet them. Both major national parties have also zeroed in on aging problems as a powerful political issue. For example, the Republican National Committee, stimulated by statistics indicating that one out of every four voters will be more than 60 years old in 1960, is making a strong effort to establish Senior Republican Clubs throughout the country.

Several state medical societies have already taken some action toward the solution of the aging problem within their states and it is anticipated that the AMA request for action will hold the limelight at every state association annual meeting in the country.

## Oklahoma's Position

Traditionally, most Oklahoma physicians have long opposed a service-type contract for medical services and have vociferously supported the philosophy behind the prevailing indemnity Blue Shield program, where physicians have the option of assigning additional fees beyond the prescribed Blue Shield payment.

Many feel that any approval of a service plan by the House of Delegates will represent a major departure from existing policies. Proponents of the service program for low-income senior citizens point out, however, that the adoption of such a program is simply a realistic approach to a heretofore unsolved problem, involving less than ten per cent of the state's population, and does not necessarily represent a compromise of principle.

Doctor Mohler's study group is thus involved in the evaluation of an extremely controversial subject. On March 18, Hayden H. Donahue, M.D., Chairman of the Committee on Health Care of the Aged, Earl D. McBride, M.D., Chairman of the Sub-Committee on Insurance and Retirement and Henry T. Russell, M.D., Chairman of the Blue Shield Liaison Committee, met with representatives of Blue Cross-Blue Shield for a preliminary discussion of the possibilities and propriety of developing a program for Oklahoma.

Following this meeting, the committees of Doctors Russell and McBride met for four hours on Sunday, March 22, for further consideration of the proposal. After hearing various plans that may be possible to initiate in Oklahoma, the group voted to establish a smaller committee, under the leadership of Doctor Donahue, to carry out an immediate and comprehensive analysis of the alternate plans that are apparently available. The special committee will assemble on April 4, at which time definite recommendations will be formulated for presentation to the large group on the following day.

The final report on this subject will be presented to the Council on April 18 and then be passed on to the House of Delegates

on the following day, with or without a recommendation from the Council.

## Other Controversial Issues

As mandated by a resolution passed at the 1958 annual meeting, all county medical societies have been informed of known controversial issues to be brought before the House of Delegates at the 1959 meeting in Tulsa.

In addition to the health insurance proposal, it is anticipated that the Delegates will be asked to pass judgment on the following questions:

1. Whether to clamp down on hospitals that are allegedly collecting physician's fees for the care of Welfare recipients. A special study committee is now investigating this situation and its findings have not been finalized at this time.

2. Ratification of the DPW committee's recommendation pertaining to the handling of welfare medical claims, to wit:

"Each claim completed by a physician will state whether the claimant is under salaried contract, or on retainer by the hospital where the patient received his treatment. If under contract, or salaried, or on retainer, the claim will be disallowed."

3. In the event Senate Bill 20 becomes law (pertaining to the transfer of the functions of the Crippled Children's Commission to the Department of Public Welfare), the House may be asked to change the present policy of performing complimentary service for ADC cases which are now processed through the machinery of the CCC.

4. Delegates may be asked to ratify the implementation of a previously endorsed, optional method of receiving compensation for the medical care of welfare recipients. Under this plan, physicians would have the option of consigning their payment for services directly to another agency, institution, trust fund, etc. County societies are being polled regarding this proposal by the DPW committee.

5. Action must be taken on a resolution calling for a constitutional amendment to make AMA dues optional rather than mandatory.



## **OSMA, Others Favor Radiation Bill**

House bill 583, an act relating to atomic energy, ionizing radiation and radiation protection, is receiving active support from several groups as it is being processed through the channels of the 27th State Legislature.

The bill, introduced by Representative Goodfellow of Anadarko, includes the recommendations made by an advisory committee comprised of physicians, engineers, hygienists and representatives of the State Department of Health. Lucien M. Pascucci, M.D., Tulsa, and Kieffer Davis, M.D., Bartlesville, served on this committee. Physicians serving on the Public Policy Committee of the OSMA have also reviewed this piece of legislation and endorsed its principle.

If passed, the bill will establish regulatory procedures for governing the safe use of radioactive materials or devices capable of producing ionizing radiation. The purpose of such a law is to encourage the beneficial uses of ionizing radiation in manufacturing, agriculture, research and other gainful purposes and to prevent and control any harmful effects arising from misuse of such radiation.

The proposed model law recognizes the use of radiation as a potential health problem and places the administration of the act in the State Department of Health. One of the important features of the proposed law provides for the establishment of a Radiation Advisory Committee composed of twelve qualified members who are to advise the Commissioner of Health on needed rules, regulations and standards of radiation protection. Members of this committee will receive no compensation.

The Atomic Energy Commission has endorsed the adoption of radiation protection laws by the various state governments to insure the safe use of radioactive materials sold by the Commission to private users. To date, eight states have adopted such acts placing the administration in the respective

## **O.U. Students to Attend Student AMA Meeting**

Six medical students from the Oklahoma University Chapter of the Student American Medical Association will represent their state at the organization's annual convention in Chicago, April 30 through May 3. At this time, only three of the Oklahoma delegation have been named by Herschel L. Douglas, President of the local chapter. In addition to himself, Ed Brandt, Chairman of the National Committee on Graduate Education, and William Kirkham, National Treasurer, are planning to attend.

Scientific papers and exhibits by more than a score of students, interns and residents and presentations by leaders in medicine, including Alton E. Ochsner, M.D., will highlight the ninth annual meeting, to be held at Chicago's Shearson Hotel.

Representing all parts of the nation, the program participants were selected from a record-breaking flood of applications.

In addition to the scientific portion of the meeting, other events include: the Association's House of Delegates meeting, a concurrent meeting of the SAMA Woman's Auxiliary, annual banquet and dance, and a special party sponsored by the Abbott Laboratories where more than 2,000 guests will be entertained with dancing, refreshments and a Broadway floor show.

## **Vets Medical Care Leaflets Available**

The AMA Committee on Federal Medical Services has released three leaflets on the profession's policies toward veterans' medical care. Entitled "How to Cut Your Medical Bill," "Gigantic Giveaway" and "What About the Veterans Family," the leaflets are available through the Council on Medical Service, AMA.

health departments.

At the present time, the bill is in the Appropriations and Budget Committee of the House of Representatives.

## Six Oklahoma M.D.'s Slated To Undertake National Legislative Program

Six Oklahoma physicians, one from each of the congressional districts are being asked to build national legislative teams within their respective districts. The appointments represent an effort on the part of the Public Policy Committee and John E. McDonald, M.D., Tulsa, member of the AMA Legislative Committee, to re-vitalize Oklahoma's activities in the promotion of the AMA's legislative program on a local basis.

The physicians accepting the district assignments will serve as a National Legislative Sub-Committee to the Public Policy group, but, more importantly, they will hold key positions at the "grass roots" level of legislative communication. Under the new system of communication, information and materials on national bills affecting health care will come to the OSMA through the AMA's Washington Office and Legislative Committee. Suggested action will be evaluated at the state level and a definite program will be developed by the Public Policy Committee and the Sub-Committee. The Sub-Committee members will then carry the plan back to the organizations within their congressional districts and build effective information campaigns as deemed necessary.

It is felt that membership in the district organizations may well be opened up to other professional groups, civic leaders, and any others who are interested in good government and willing to do something about it. However, the composition of the district "teams" will be left entirely to the discretion of the physician in charge, who will have complete authority and responsibility for the success or failure of a national legislative program within his district.

The group will hold an indoctrination meeting during the annual meeting of the OSMA on Monday, April 20. At that time, basic goals will be outlined by Doctor Gunnar Gundersen, President of the American Medical Association and Mr. Glenn Gillette,

## OSMA Hosts AMA Committee

On April 11, Oklahoma City and the Oklahoma State Medical Association hosted a regional meeting sponsored by the American Medical Association's Committee on Maternal and Child Care. A group of physicians, representing ten states of this area, met to discuss maternal and perinatal studies that are being conducted throughout the country.

Perinatal, a relatively new term, involves the period of time during pregnancy and within thirty days following delivery. Medical men have recognized the need for further study of the mortality and morbidity cause and frequency within this area and the AMA Committee, working under the Council or Medical Service, is correlating the work being done by the states.

Oklahoma was one of the first states to undertake such studies. The studies are being sponsored jointly by the Oklahoma State Medical Association, the University of Oklahoma School of Medicine and the State Department of Health.

Following the regional meeting, held at the Skirvin Hotel, the AMA Committee met on April 12 at the OSMA executive offices.

---

member of the AMA's Field Service Division. J. R. Stacy, M.D., Chairman of the Public Policy Committee, and Doctor McDonald will then brief the group on a definite course of action to be taken on specific pieces of legislation that are considered to be of sufficient impact for a first priority assignment.

Serving as the most important link in the channel of communications, will be the following physicians: Worth M. Gross, M.D., Tulsa, District I; Tom S. Gafford, Jr., M.D., Muskogee, District II; J. Hoyle Carlock, M.D., Ardmore, District III; Clinton F. Gallaher, M.D., Shawnee, District IV; William N. Harsha, M.D., Oklahoma City, District V; and Paul B. Lingenfelter, M.D., Clinton, District VI.





The large structure, left, is Hillcrest's new Maybee Children's Center. At right is the new general wing.

## Hillcrest Medical Center Opens Two New Wings

Tulsa's Hillcrest Medical Center recently opened two new wings which were erected at a cost of \$4 million. This gives the center a total of 800 beds.

### Maybee Children's Hospital

The six-floor Maybee Children's Hospital wing, built at a cost of \$2 million, features the latest equipment as well as many innovations for hospital care of children. The facility is a gift from the J. E. and L. E. Maybee Foundation.

An x-ray therapy department is located in the wing basement. Equipment to be installed later includes a cobalt-60 machine.

The first floor houses the micro-chemical laboratory where tests will be made on the young patients. On the second floor, a diagnostic x-ray section has been installed.

Patients in the 3½ to 8-year old category will be treated on the fourth floor. Cribs and bassinets have been located on the fifth and sixth floors to care for 1-day to 3-year-old patients. Isolation wards are

provided on the third floor as are facilities for the care of adolescents.

Each room has a play room, properly equipped for the age range. A combined kitchen and nurse's workroom also has been provided on each floor level. In these kitchens, "irregular" meals and special formulas will be prepared.

Each room may be converted into a private or semi-private unit, thus enabling parents to stay with their children. Glass has been used extensively in the internal walls to permit maximum observation.

### General Bed Wing

The new north wing houses the main entrance, admission administrative offices on the ground floor. On the fourth floor, seven new operating rooms have been constructed. All have new lighting systems with explosion-proof electrical outlets.

All beds are electrically operated and have access to oxygen, vacuum and intercom systems.



## **Medicare Brass Alarmed About Delayed Billings**

In a recent communication from the Office of Dependents' Medical Care, concern was expressed about Medicare claims which have been delayed for a considerable period of time after the care was rendered. Government officials point out that delayed billings not only work a hardship on the dependents, the fiscal contractors and the source of care, but also hamper the accurate preparation of budgetary requests and required statistical data.

### **Suggested Handling of Future Claims**

The correspondence emphasized that Medicare contracts call for payment to be made on the basis of "complete" claims and urged hospitals and physicians to obtain all necessary information, including Medicare Permit if required, or make arrangements for obtaining same, at the time the patient makes the initial visit and at the time an understanding is reached that care will be rendered under the program.

It was pointed out that the eligibility of the patient should be substantiated from information contained on DD Form 1173 (Identification Card) or from other documentation establishing that the patient is an eligible dependent of an active duty member of the Uniformed Services. After eligibility has been determined and properly documented the medical service should be performed, followed by the prompt filing of a claim for compensation.

### **Old Claims May Be in Jeopardy**

Although it was not stated specifically, it was implied by the government release that physicians holding old claims on their desk may encounter some future difficulty in collection. An urgent plea was expressed that physicians and hospitals "complete" and submit old claims as soon as practicable. The correspondence repeatedly spoke of the difficulty of processing such claims and resolving any difficulties associated with them after the passage of considerable time between the rendering of service and the billing.

## **A.M.A. Annual Meeting In Atlantic City**

Approximately 15,000 physicians are expected in Atlantic City, New Jersey for the 108th Annual Meeting of the American Medical Association which will be held June 8-12th. Atlantic City will be hosting the five-day convention, the world's largest medical meeting, for the 16th time.

New medical research findings and methods of handling daily medical problems will be reported by 500 physicians in scientific papers or participation in symposium and discussion groups.

### **New Look for Atlantic City**

Since 1955, when the A.M.A. last met there, Atlantic City boasts 4,000 new motel units and millions of dollars have been spent in remodeling and modernizing several of the larger hotels. According to A.M.A. Convention Officials, "the charm of this vacation spot has been retained while the comforts have been vastly improved."

Of particular interest to the visitors at this season of the year will be the excellent fishing afforded at Cape May, just 40 miles south of Atlantic City.

The proximity of New York City is an additional attraction for the visiting physicians and their wives, as it is only a two hour drive from the convention city.

Advance hotel and meeting registration information is available by writing to Convention Service Department, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

## **Record Enrollment Seen For Health and Accident Program**

Enrollment in the Association's new health and accident insurance program has reached record proportions, according to figures recently released by the North American Accident Insurance Company, underwriters of the program.

From December 15, the beginning of the enrollment period, through April 1, 778 members of the O.S.M.A. have become insured under the master policy. This number includes new enrollees as well as physicians

who have transferred their coverage from the old North American program to the improved plan which replaces it. Since nearly two hundred physicians have not yet transferred from the old to the new, the total enrollment picture looks even brighter, with nearly a thousand participants being virtually assured. The previous program was carried by 760 physicians.

#### **Enrollment Period Extended**

The charter enrollment period originally scheduled to end on April 15, has been extended by the insurance company until May 15. The principle reason for the increased latitude is to allow more time for company representatives to make personal calls on physicians. Another reason for the extension is to allow prospective physicians an opportunity to visit the North American exhibit at the O.S.M.A. Annual Meeting April 20-22, Tulsa.

Extension of the charter enrollment period will enable more physicians to come into the program without evidence of insurability. Under the terms of the master contract, all members who transfer or submit new applications before the expiration of this period will be assured of at least \$200 per month coverage, regardless of physical condition. Those insured under the old program will receive full return of unearned premium at the time of transfer, or they may wait until their next premium due date to change. Most physicians will be able to secure \$600 per month coverage if they are under 60 years old and in reasonably good health.

Brochures have been sent to every physician in the state and sample master contracts are now being mailed to county medical societies. It is important to note that an individual certificate can be cancelled only for non-payment of premium, attainment of age 70, termination of O.S.M.A. membership or retirement from the active practice of medicine. Any other termination of coverage would have to result from the unlikely cancellation of the master contract by either the O.S.M.A. or the insurance company, with ninety days notice of such action being a mandatory feature of the master contract.

#### **James P. Jobe, M.D., Honored**



James P. Jobe, M.D., was recently honored when the El Reno Junior Chamber of Commerce awarded him their Distinguished Service Award. The honor was in recognition of his many professional, civic and religious activities in El Reno. The organization had previously elected him to the office of Vice-President.

From a professional standpoint, Doctor Jobe belongs to the Oklahoma State Medical Association, the American Medical Association, the Oklahoma A.A.G.P., the American Academy of General Practice, the Oklahoma State Heart Association and the American Heart Association. In addition, he is serving as President of the Canadian County Mental Health Association, Secretary of the Canadian County Medical Society, Medical Advisor of the Canadian County Heart Unit and as a member of the Professional Education Committee of the State Heart Association.

A deacon in the First Baptist Church and President of the Training Union also teaches and sings in the choir.

Additional activities of the physician include participation in the Lions Club, and sponsorship of the Pre Med Club, a group which offers vocational guidance for students entering medicine and allied fields.

NOW—YOU CAN GET THE  
UNSURPASSED ADVANTAGES  
OF ARISTOCORT  
IN SALICYLATE  
COMBINATION

Arist

Aristogesic combines the *anti-inflammatory* effects of Aristocort® Triamcinolone with the *analgesic* action of a most potent salicylate. This means that the dosage of each is *substantially lower* than that ordinarily required for each agent alone. With Aristogesic the physician has exceptionally wide latitude in adjusting the dosage to the lowest effective level.

The possibility of gastric distress from either salicylamide or corticosteroid is minimized because of lower dosage required. This is further reduced by the buffer action of aluminum hydroxide. And the ascorbic acid helps meet the increased need for this vitamin in stress conditions. Because of the low dosage, side effects with Aristogesic have been relatively infrequent and minor in nature. However, more serious side effects have traditionally been observed on all corticosteroid therapy. Patients on long-term Aristogesic therapy should, therefore, be observed carefully.



## Steroid—Analgesic Compound LEDERLE

Collagen tissue (x250)

\*TRADEMARK



LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York



Pictured above, R. Q. Goodwin, M.D., 1955-56 President of the Oklahoma State Medical Association, is shown presenting 50 Year Pins to O. R. Gregg, M.D. (left photo) and Edward F. Stephens, M.D. (right photo).

### **Two Norman Physicians Honored At Doctor's Day Celebration**

The Annual Doctor's Day celebration of the Cleveland-McClain County Medical Society Auxiliary provided an appropriate opportunity for auxiliary members and physicians alike to pay tribute to two Norman men of medicine. O. R. Gregg, M.D. and Edward F. Stephens, M.D. were extended appreciation for their combined 100 years of medical service when R. Q. Goodwin, M.D., recent state medical association president, welcomed them into the association's 50 Year Club and awarded each an official lapel pin.

Mrs. T. A. Ragan, President of the auxiliary group, was in charge of general arrangements for the event which took place at the Officer's Club of the Norman naval base. Outstanding entertainment and buffet dinner were arranged by the Program Committee which was comprised of Mrs. W. H. Atkins, Chairman, Mrs. Carl T. Steen and Mrs. S. C. Bostic. Preceding the dinner and program, the Ragans and the Nielsens sponsored a social hour, also held at the club.

The Norman event typified the many Doctor's Day celebrations held throughout the state by County medical society auxiliaries.

# Auxiliary News

## Sooner Physician's Wife

The official publication of the state auxiliary, the *Sooner Physician's Wife*, is issued quarterly to each dues paying member. Mrs. Samuel T. Moore, editor, Mrs. J. Powers Wolff, co-editor, and Mrs. Virgil Ray Forester, secretary-treasurer, all of Oklahoma City, work with the county press and publicity chairman in every county auxiliary in reporting news, projects and activities of the medical auxiliary.

Elizabeth Moore, editor in chief, is a journalism student and a writer. Mabel Wolff, a past president, has helped immeasurably with her knowledge of auxiliary matters. *Sooner Physician's Wife* is published by the Oklahoma City University Press.

Last year a colorful back cover was added which is attractive and distinctive. A display of bulletins and newsletters from other states was made at the Fall Conference at the State Medical Headquarters building. *Sooner Physician's Wife* compared most favorably with other state bulletins. We are proud of the quality and high standard of the state auxiliary publication.

## More Members-at-Large

Members of an active auxiliary group may forget there are communities in Oklahoma with only a few doctors in a county, so there is no organized medical auxiliary to the county medical society. Sometimes two or three counties meet together. The wives of these doctors may be members-at-large of the state and national auxiliary, if the husband is a member in good standing of the county medical society and the Oklahoma State Medical Association.

Where there are five or more eligible auxiliary members who can meet at least four times a year, it is preferable that a county auxiliary be formed. The woman's auxiliary is a strong influence in community health

programs or any such project that might be undertaken by the county medical society.

Members-at-large represent the auxiliary in their community. They can subscribe to the *National Bulletin*, *Today's Health* magazine, and read each issue of the *Sooner Physician's Wife* for information on current medical matters.

The Membership Committee, Mrs. Pat Fite, Sr., Muskogee, and Mrs. Tom C. Sparks, Ardmore, and the councilors in every district, have tripled the number of members-at-large this year.

## Legislation

The auxiliary member is a voter, and often has valuable influence in the women's clubs, PTA, and other groups. In the matter of legislation, as with all other medical auxiliary programs, we look to the medical society for guidance. Last year the Jenkins-Keogh bill to encourage establishment of pension plans by the self-employed passed the House by an overwhelming vote, only to be stopped in the Senate. It has passed the House again this session and is about to be tested in the Senate.

The Forand bill, authorizing hospitalization and surgical benefits to all Social Security beneficiaries, is awaiting congressional consideration. Meanwhile, there is much community service to be done on the AMA program on Health Care of the Aged, our answer to the Forand bill.

Auxiliary members must keep informed and have close contact with the county medical society's legislation program in order to act intelligently when the need arises. The cooperation of auxiliary members who have complied with assistance on legislation requests, and those who have sent cards, telegrams and made personal contacts has been acknowledged and is deeply appreciated. Let us not relax our vigilance and continue to keep ourselves informed.



## Today's Health the Magazine For the American Family

There are many projects undertaken by the Woman's Auxiliary that call for equal effort and support from the county medical societies. When the men have decided on a plan and outlined the course of action, the auxiliary is ready and eager to carry the project to completion. Their success in promoting the *Today's Health* magazine is a good example.

This official publication of the American Medical Association is written in the layman's language for the American family. It answers the familiar complaint that the busy doctor does not have time to explain medications, symptoms and new ideas in the mysterious world of medicine. This excellent magazine does it so well.

The physician's wife is asked many questions which apparently she is expected to know because she is married to this man of medicine. If she did know the answers, it is preferable that she not get involved in at-

tempts to answer questions that lead her into deep water. The *Today's Health* magazine is the solution. Have a copy for reception room reading. Give subscriptions generously to neighbors, relatives, and those friends and acquaintances who expect information from the busy doctor; often taking more time and energy than he has to spare. Give subscriptions to teachers, preachers and community leaders who are called upon for leadership in health programs; they may need the authentic information provided through this AMA monthly publication for the general public—*Today's Health*—the magazine for the American family.

## Have You Heard?

VAN HOWARD, M.D., a graduate of the University of Oklahoma School of Medicine in 1955, will open offices in the Hobart Clinic on July 1. Doctor Howard recently completed a three-year residency in surgery at St. Anthony Hospital in Oklahoma City.

WALLACE N. DAVIDSON, JR., M.D., Cushing, was recently certified by the American Board of Dermatology and is now serving three years at Wright Patterson Air Force Base Hospital, Dayton, Ohio, as head of the Department of Dermatology.

DOCTORS W. T. MCCOLLUM, ALLEN GREER and ROBERT REDMOND appeared before the Comanche County Medical Society's March meeting where they discussed cardiac catheterizations, angiograms, and cineradiography that is being performed at Mercy Hospital, Oklahoma City.

D. L. DYCUS, M.D., and K. H. BAGWELL, M.D., have recently opened the Moore Medical Clinic in Moore, Oklahoma. Both Doctors are graduates of the University of Oklahoma School of Medicine.



provides therapeutic levels . . . for 24 hours . . .  
with low incidence of sensitivity reactions . . .

WHENEVER SULFAS ARE INDICATED<sup>®</sup>

# KYNEX

Sulfamethoxypyridazine Lederle

0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION

LEDERLE LABORATORIES, a Division of  
AMERICAN CYANAMID COMPANY, Pearl River, New York



# Deaths

A. S. MELTON, M.D.  
1885-1959

A. S. Melton, M.D., Okemah physician, died March 1, 1959.

Born in Marshall, Arkansas, Doctor Melton graduated from the University of Arkansas School of Medicine in 1912. After practicing in Rocky, Oklahoma for a short while, he moved to Okemah where he practiced for nearly thirty years.

Doctor Melton was serving his second term as President of the Okfuskee County Medical Society at the time of his death.

ALBERT E. HENNINGS, M.D.  
1878-1959

Albert E. Hennings, M.D., died in Tuttle on February 28.

Born in 1878, Doctor Hennings graduated from St. Louis College of Physicians and Surgeons in 1907. He served as a member of the Oklahoma House of Representatives from 1947 to 1949.

In 1954, the Oklahoma State Medical Association honored Doctor Hennings for his service to the profession by presenting him with a Life Membership.

ALVIN RAY WILEY, M.D.  
1890-1959

Alvin Ray Wiley, 68-year-old Tulsa physician died March 13, 1959.

A native of Kansas City, Doctor Wiley came to Tulsa in 1903. He graduated from the University of Oklahoma School of Medicine in 1913.

Doctor Wiley concentrated his medical practice in the field of surgery. He was a Fellow in both the American College of Surgeons and the International College of Surgeons.

Active in both civic and professional work, Doctor Wiley was President of the Tulsa County Medical Society in 1939 and served for more than a decade on the Tulsa City Board of Health.

HARL F. VANDEVER, M.D.  
1884-1959

Harl F. Vandever, 74-year-old Enid physician, died March 7, 1959.

A native of Minnesota, Doctor Vandever came to Oklahoma City in 1900. In 1907, he graduated from the University Medical College of Kansas City. He began his practice in Portales, New Mexico, moving to Lahoma, Oklahoma in 1910 and to Enid in 1912.

In 1957, Doctor Vandever was honored for his years of service to the profession when he was presented a Fifty Year pin by the Oklahoma State Medical Association.

DANIEL WILLIAM O'LEARY, M.D.  
1873-1959

Daniel William O'Leary, retired Norman physician, died March 24 in Norman. He was the father of Charles M. O'Leary, Oklahoma City physician.

Born in LaFayette, Indiana, Doctor O'Leary graduated from the University of the South, Sewanee, Tennessee in 1904. He moved to Norman in 1941.

In 1950, Doctor O'Leary was honored for his years of service to the profession when he was presented a Life Membership in the Oklahoma State Medical Association.

ALVIN W. PAULSON, M.D.  
1907-1959

Alvin W. Paulson, 51-year-old Oklahoma City physician, died on March 8, 1959. After graduating from Washington University School of Medicine in St. Louis in 1932, Doctor Paulson came to Oklahoma City where he practiced until 1934 when he moved to Clinton.

After six years in the military service, he practiced one year in Rapid City, South Dakota before joining the regional office of the Veterans Administration Hospital in Oklahoma City, a position he held at the time of his death.

# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association April, 1934.

**RELIEF OF PROSTATIC HYPERTROPHY AND  
BLADDER NECK RESECTION BY THE  
TRANSURETHRAL METHOD  
W. J. Wallace, M.D., Oklahoma City**

Prostatic resection is the removal, by instruments passed through the urethra, of the obstructing portion of the prostate gland. This is carried out either by the improved cautery punch method, or by electrically controlled loops, which remove obstructing tissue under direct vision, and without resorting to the open operation.

Until within the last few years, it was considered that prostatic hypertrophy could only be relieved by the open operation, such as the suprapubic or perineal prostatectomy. Also until a fairly recent date the removal of the prostate was considered one of the most difficult and dangerous operations in the field of surgery.

Dr. Hugh Young, back in 1909, developed what is known as his punch instrument, which, so it is claimed, was fairly successful in certain types of obstruction, but not generally used on account of the likelihood of hemorrhage and infection.

Dr. John Caulk, in 1920, developed a cautery punch for cautery resection of prostatic obstruction. He believes that a large portion of the obstructions are inflammatory hyperplasias, and not neoplasms. Therefore, it is not necessary to remove the gland completely, but remove the obstructing portion, followed by a certain amount of shrinkage.

Stern, in 1926, introduced his ingenious instrument which he called the "resectoscope," but for some cause he did not continue his research work to a successful or practical conclusion. Shortly thereafter, though, Dr. T. M. Davis of Greenville, South Carolina, became interested and began using this instrument, but added numerous improvements, such as: A larger fenestra, cutting loop, improvement in the vision and lighting systems. He also added a coagulation current for the control of hemorrhage. So, to Dr. Davis, credit must be given for the advancement

and information obtained in the transurethral method of treating the prostate and neck obstructions.

Credit is due, also, Dr. J. F. McCarthy for devising his ingenious visualizing instruments. At this time his instrument called the "resectotome," is fairly universally used.

There is no subject before the medical world today causing as much comment as the discussion of the relative merit of instrumental prostatectomy and other forms of vesicle neck obstruction. At this time there has been a sufficiently large number of cases reported and observed over a period of time, to permit one to make an estimate as to the relative merits of this method, as compared to the open operation. So, with the light of this information before me, I feel that at least 95 per cent of prostatic obstructions can be removed by the transurethral or instrumental method.

The question might be raised, "Will prostatectomy become obsolete, since the advent of the transurethral method?" I say "No," as there is no method that is one hundred per cent perfect. Then, too there might be complications that would end in more difficulty, which might require either suprapubic or the perineal operative measures, but the percentage of use of the older method will be small, I think not over five per cent.



provides therapeutic levels . . . for 24 hours . . .  
with low incidence of sensitivity reactions . . .

**WHENEVER SULFAS ARE INDICATED** ®

# KYNEX

Sulfamethoxypyridazine Lederle

**0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION**

LEDERLE LABORATORIES, a Division of  
AMERICAN CYANAMID COMPANY, Pearl River, New York





# PHYSICIAN PLACEMENT

## General Practice

Albert Stanley Bailey, Jr., M.D., P.O. Box 1381, Westhampton Beach, L. I., New York, age 28, married, graduated from University of Oklahoma, 1955, presently in military service, will be available May, 1959.

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

John W. Kennard, M.D., 20 Olson Lane, Fort Rucker, Alabama, age 26, married, graduated from Bowman Gray School of Medicine, 1956, presently in military service, will be available September, 1959.

James W. McDoniel, M.D., 13-B Thompson Street, Langley Air Force Base, Virginia, age 27, married, graduated from Oklahoma University School of Medicine, 1956, will be available July 1, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Edwin Ruben Reinschmiedt, Lt., MC, USNR, BOQ, Alameda Naval Air Station, California, age 30, married, graduated from University of Oklahoma, 1956, presently in military service, will be available June 15, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

## Internal Medicine

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

## Locum Tenens

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

## Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

## Obstetrics and Gynecology

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

## Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

## Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

## General Surgery

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

## Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.

## MISCELLANEOUS ADVERTISEMENTS

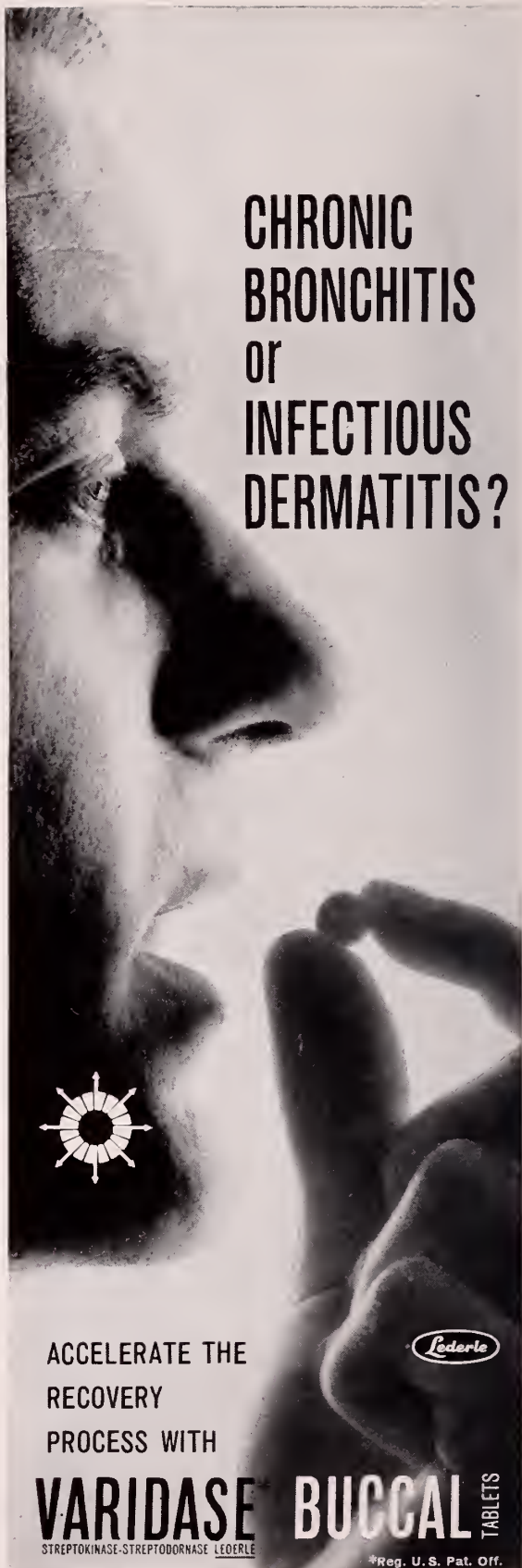
**FOR SALE:** Jones BMR Machine, six years old, used very little. Contact A. M. Brown, Jr., M.D., Perry, Oklahoma.

**BARGAINS**—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-RaY Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.


**GOOD OPPORTUNITY FOR YOUNG PHYSICIAN** wanting to do general practice. Another physician is needed at once in this prosperous county-seat city of 3,000, with an equally-prosperous farming and ranching area surrounding it. One of the best-equipped, modern small hospitals in the state. Long-term financing available for equipping office and remodeling it to suit the person applying. Will offer every assistance also in finding comfortable housing. Call or write Don Johnson, Secretary-Manager, Pawnee, Oklahoma, Chamber of Commerce.

**WANTED:** Civilian physician to serve at Air Force Hospital, Clinton-Sherman Air Force Base, Clinton, Oklahoma. Work to be essentially with outpatients. Starting salary of General Practitioner \$7,030.00. Starting salary of Specialist \$9,890.00 per year. Write to Capt. Frank H. Dailey, USAF (MC), 857th Medical Group, Clinton-Sherman Air Force Base, Clinton, Oklahoma.

1600 SQUARE FOOT physician's office and home for sale, located in Oklahoma community of 10,000. Office may be purchased separately, or both may be bought for about one year's gross income. Excellent practice opportunity at moderate cost. Write Box A, The Journal, Oklahoma State Medical Association, P. O. Box 9696, Oklahoma City, Oklahoma.




**CHRONIC  
BRONCHITIS  
OR  
INFECTIOUS  
DERMATITIS?**



**ACCELERATE THE  
RECOVERY  
PROCESS WITH**

**VARIDASE BUCCAL** TABLETS

STREPTOKINASE-STREPTODORNASE LEDERLE



\*Reg. U. S. Pat. Off.

**LEDERLE LABORATORIES**, a Division of AMERICAN CYANAMID COMPANY,  
Pearl River, New York



## Health Insurance for Senior Citizens

The report of this committee which was submitted to the House of Delegates by its Chairman, Doctor Hayden H. Donahue, appears on page 335. This committee recommended to the Council and the House of Delegates that the principle of a service plan be approved for those in this age group with a limited income, and that a plan for implementing such a program be developed during the next ninety days at the end of which it would be presented to the House of Delegates at a special meeting for ratification, rejection or modification. The committee's recommendations were approved by both the Council and the House of Delegates. This is for many reasons a step forward in medicine.

1. It is an attempt to solve a problem in a positive manner. On the surface it might appear again to be a negative one, for the study was stimulated by the impending Forand Bill. But the discussion brought out the fact that the representatives of the membership are thinking in terms of medicine's responsibility now as they have never done before. It is the opinion of this writer that if medicine is forced to give up as a private enterprise it will be because she has not solved the problems of health care of large groups who need help under the private enterprise system and not because of socialists and goodooders.

2. It is a break with the reactionary uncompromising position of the past which precluded any possible chance of approaching economic problems of people with an open mind. A service plan for people of limited income in stipulating a fixed fee does not downgrade the value of the doctor's service but upgrades the value of human life and human effort and human dignity. It is a much fairer trade for services when one considers the dollars involved in terms of the hours required to earn them. The answer as long as I can remember has

been, "we have always charged people only what they could afford to pay." This is true for the most but not for the few, and brings up the next point.

3. This action of the House of Delegates implies a willingness to police its own organization and rid itself of vultures and vermin who do it great discredit. No plan adopted can succeed without the earnest desire of the members of the association to make it succeed. This means that it cannot be abused. The machinery for preventing abuse must be set up along with the plan itself. The insistence on Free Choice of Physicians carries with it some responsibility on our part.

4. It opens the way for the care of all people with limited incomes. When this is done, socialized medicine is a dead duck.

5. It will make mandatory an acceptable insurance program by any company writing health insurance. Blue Cross-Blue Shield is by all odds the answer for us, for it would mean approval of only one company. Constant surveillance of hundreds of companies would be an impossible task. The enterprise is still the practice of medicine—not insurance.—*B.H.N.*

## Quo Vadis?

The first list of approved internships published in 1914 listed 2767 available internships in a year when there were 3594 medical graduates. The number of internships offered first exceeded the number of medical graduates in 1926. This has been true every year since then so that now the ratio is almost two internships offered to each medical school graduate. A necessary corollary is that some hospitals will not fill their quotas. Many internship committees and department heads have struggled with this problem. In a recent study, Dolkart, Brosard, and Cooper<sup>1</sup> surveyed the characteristics of hospitals which fill their quotas and those who do not. Because it appeared defi-



nite from previous studies<sup>2</sup> that monetary return does not significantly influence internship selection, it was decided to investigate other reasons for the frequency of application. Three general areas for study were selected: hospital facilities, composition of the staff, and the nature of the educational program. The significant differences between the hospitals who filled their quotas for four years (100 per cent group) and those who never obtained an intern in the four years of the study (0 per cent group) are summarized in the table.

**Significant factors common to the 100 per cent group of hospitals**

Facilities	Larger than the 0 group. Predominantly charity.
Staff	Larger per cent on university faculties. Larger proportion are board certified. Regular research conducted in hospital. Guest clinicians are regularly invited to participate in teaching.
Program	Larger number of patients per service. House and attending staff make rounds together. More hours per day spent on teaching rounds. More seminars and conferences.

**Factors which did not appear to be significant**

Facilities	Living quarters. Recreational facilities. Age of buildings.
Staff	Per cent of full-time staff. Per cent of staff in private practice. Presence of an educational committee or director. <sup>3</sup>
Program	Whether interns see both private and charity patients. Whether there is or is not an out-patient service. Whether there is or is not emergency-room duty. Number of nights off per week.

The pertinent factors clearly indicate that the educational environment is the important determining factor in student selection. Although a hospital cannot make itself larger, or older, or change its ratio of private to charity patients, most of the other attributes of the "100 per cent group" are attainable by a far greater number of institutions.

**REFERENCES**

1. Dolkart, R. E., Brossard, J. M., and Cooper, J. A. D.: Hospitals Which Do and Do Not Fill Their Intern Quotas: A Survey of Characteristics. *J. M. Educ.* 33: 721, 1958.
2. McJoynt, J. R., and Crosby, E. L.: The Fifth National Intern Matching Program. *J. M. Educ.* 31: 591, 1956.
3. Because of the wording of the questionnaire, it was not possible to learn whether the presence of a full-time Director of Education was significant.

BRAIN, *n.* An apparatus with which we think we think. That which distinguishes the man who is content to be something from the man who wishes to do something. A man of great wealth, or one who has been pitchforked into high station, has commonly such a headful of brain that his neighbors cannot keep their hats on. In our civilian, and under our republican form of government, brain is so highly honored that it is rewarded by exemption from the cares of office.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

## Medical Treatment of the "Surgical" or Complicated Peptic Ulcer\*

CHARLES H. BROWN, M.D.

I HAVE NO WISH to alienate my good surgical friends—or even that group of my fellow internists—who believe in all honesty that this type of patient can be turned over to the tender loving care of the surgeons. I simply wish to discuss the problems of the medical treatment of the complicated peptic ulcer, give you our results in patients with obstructing ulcers, and examples of our results in other complicated ulcers.

Figure 1. This is my favorite picture on peptic ulcer. This patient demonstrates the nervous tension present—with the wrinkled brow and bags under his eyes, and the unhappy expression around his mouth. He is constantly feeding his ulcer. He also demonstrates the various types of treatment for ulcer. First and basically, the nervous tension can be treated with sedatives, change in work habits or work hours, vacation, tranquilizers, and anticholinergic drugs. The French have even treated some patients with prefrontal lobotomy which has healed the ulcer. The abdominal surgeons treat this patient by removing  $\frac{3}{4}$ ths of the nest. We gastroenterologists treat this patient, partly at least, by constantly feeding the birds, as well as treating his nervous tension.

The improvement in both surgical technique and mortality for peptic ulcer has been great in the past 10 to 20 years. In the best

Charles H. Brown, M.D., graduated from Rush Medical College in 1938. He is certified by the American Board of Internal Medicine and the American Board of Gastroenterology. His specialty is Internal Medicine with a subspecialty of Gastroenterology.

A member of the Staff of the Cleveland Clinic and the Cleveland Clinic Hospital since 1948, Doctor Brown is an Associate Professor of the Frank E. Bunts Educational Institute in Cleveland.

Doctor Brown is a member of the American Federation for Clinical Research, American Gastroenterological Association, American Gastroscopic Society, American Association for Study of Liver Diseases and the American College of Physicians.

*This paper was presented at the 52nd Annual Meeting of the Oklahoma State Medical Association in Oklahoma City, May, 1958.*

centers, the mortality for any type of operation for peptic ulcer should not exceed 1 per cent. The improvement in surgical results has led many to believe that all patients with a complicated peptic ulcer are surgical candidates and should be operated upon. Many have forgotten that reports, dating as long ago as 43 years<sup>1</sup> and repeatedly reiterated since then, have shown that most of these patients with complicated peptic ulcer can, do, and will respond to intensive medical treatment.

\*From the Department of Gastroenterology, The Cleveland Clinic Foundation and The Frank E. Bunts Educational Institute, Cleveland, Ohio.



Figure I. Typical ulcer patient. Used with the kind permission of the artist—Boris Artzybasheff.

Despite the improvement in surgical technic and mortality, the individual patient who is a 1 per cent statistic as a mortality is none the less 100% dead. The tragedy is, of course, that he is a mortality from benign disease. In addition, 10 to 20 per cent of the patients subjected to operation for ulcer develop side reactions such as severe dumping syndrome, malnutrition, anemia, and marginal ulcer and other complications that may cause more difficulty to the patient himself than the ulcer did originally. That these patients are problems is indicated by the fact that one entire afternoon session of the First World Congress in Gastroenterology (Washington, June, 1958) was devoted to gastric resection reactions and their treatment. We have personally seen severe dumping syndromes, hypoglycemia, pernicious anemia, iron-deficiency anemia that responded only to parenteral iron, psychasthenia, and several suicides that developed or occurred following gastric

surgery for duodenal ulcer. Medical treatment of peptic ulcer may be more time-consuming to both the physician and the patient than operation. We believe medical treatment warrants a thorough trial in every patient, and we like to avoid operation when possible.

#### I. Duodenal Ulcer With Obstruction

Obstruction due to duodenal ulcer is regarded by many as an indication for operation. Sippy,<sup>1</sup> however, as long ago as 1915, reported the successful medical treatment of obstruction, and there have been repeated similar reports since then (R. C. Brown,<sup>2</sup> Lahey,<sup>3</sup> etc.).

We<sup>4</sup> have reported previously a 56-month follow-up on 36 patients with severe obstruction due to ulcer, all of whom were treated medically. The average duration of ulcer symptoms was 11.7 years. Six had had symptoms from 22 to 39 years, which is sufficient time to expect scarring and cicatricial stenosis. Four of the patients had had hemorrhage and one had a history of gastric ulcer. The duration of follow-up varied from 3½ months in one patient operated on, to 10 years, with an average follow-up of 56 months. Thirty patients were hospitalized at the onset of treatment while six were treated as out patients.

The treatment of the obstruction employed in this group of patients can be divided into four periods; namely, the first 24 hours, the first week, the first six weeks, and a program, to prevent recurrence, after six weeks.

The object of treatment in the first 24 hours is to decompress the stomach, which may be dilated, and to correct dehydration and electrolytic imbalance. After aspirating and washing with a large Ewald tube, to remove all food residue, a Levin tube is inserted with continuous suction. The dehydration and alkalosis are corrected by dextrose and sodium chloride parenterally. It is also important to correct any potassium deficiency which may occur with prolonged vomiting. Transfusions may be given if the hemoglobin is less than 10.0 grams.

After the first 24 hours the continuous



suction is discontinued and the patient is placed on a strict ulcer schedule which will be outlined later. Aspiration with a large Ewald tube at bedtime is done every night. If more than 250 cc. are obtained, a Levin tube is inserted and continuous suction is used during the night. If less than 250 cc. are obtained for several nights in a row, the nightly aspirations are discontinued. No anticholinergic drugs or atropine are given the first one to two weeks, since these decrease peristaltic activity and motility in the stomach. After the obstruction has been relieved by one to two weeks' medical treatment, the anticholinergic drugs may then be used.

After the first few days of treatment, progressively less is obtained by the nightly aspiration, which indicates that the obstruction is being relieved. Depending upon the amount of material obtained, a progress X-ray of the stomach with a six-hour retention film is obtained in five to ten days. If the obstruction has been relieved and the obstruction obviously has been due to a duodenal ulcer, the patient is discharged on a strict ulcer program<sup>7</sup> including anticholinergic drugs.

The patients are asked to return in six weeks, at which time a progress stomach X-ray is obtained. The progress X-ray usually shows no evidence of obstruction and no evidence of active ulcer. The patients are then placed on a simple ulcer program designed to prevent recurrence of ulcer.

On the initial roentgen examination in the presence of obstruction, the duodenal bulb is usually not visualized. Consequently, the differential diagnosis between obstruction due to ulcer and carcinoma of the pylorus must be made after the obstruction has been relieved and the bulb can be visualized. This invariably can be done after five to ten days' medical treatment. In questionable cases, gastric cytologic examination for cancer cells should be done. Gastric cytology,<sup>6</sup> in our hands the past year, has proved to be more than 90% accurate in the diagnosis of gastric carcinoma, more accurate than X-ray study. If, despite all of the above studies and after repeat X-rays, five



Figure II-A. Roentgenogram of a dilated obstructed stomach after a barium swallow. This patient had a typical ulcer history of six years' duration, with ulcer-type distress in the spring and fall of each year. On the basis of his history, it was assumed that his obstruction was due to duodenal ulcer.

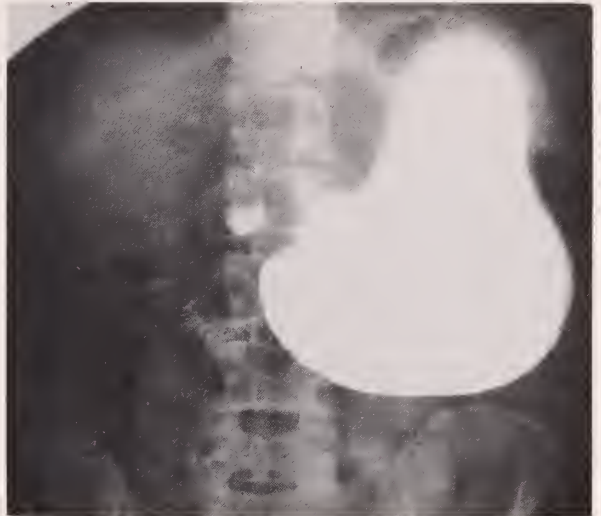


Figure II-B. After 12 days of intensive medical treatment as outlined, the stomach is still obstructed. In addition, the cause of the obstruction was not demonstrated roentgenologically. At operation, a carcinoma of the pylorus causing the obstruction was found. If the patients with obstruction are treated medically, it is essential that the cause of the obstruction—duodenal ulcer versus pyloric carcinoma—be demonstrated roentgenologically before they are discharged from the hospital. This is true even if the patient has a history typical of duodenal ulcer, as this patient. We have seen three other similar patients, one with a 16 year history of ulcer distress, whose obstruction was caused not by duodenal ulcer but by pyloric carcinoma. In addition, if the obstruction is **not** relieved by medical treatment, the probability of carcinoma causing the obstruction is greater.



Figure III-A. Patient with an obstructed stomach due to duodenal ulcer in 1946. Hypertension and arteriosclerotic heart disease contraindicated operation. He responded to medical treatment, but has had five recurring episodes of obstruction which have also responded to medical treatment.



Figure III-B. Roentgenogram in 1957 in the same patient, showing no evidence of obstruction but scarring and narrowing of the duodenal bulb.

to ten days after treatment, there still remains a question of pyloric carcinoma, operation should be and is advised.

There are a number of advantages of the first week's treatment. First, the obstruction is relieved usually even when due to pyloric carcinoma. The dilated stomach returns to normal size and tone. The electrolytes and hemoglobin are restored to normal. Differential diagnosis of the cause of the obstruction—ulcer versus pyloric carcinoma—can then be made. The patient is in far better condition for operation. Consequently, the first week of medical treatment for obstruction is indicated even though operation may be ultimately advisable.

The 36 patients we studied and treated as outlined did have a high degree of obstruction with at least 20% retention of the barium, six hours after the barium meal, when normally the stomach should be empty. Twenty-three of 28 had more than 50% retention and 10 of the 28 had 90% to 100% retention in six hours. A high degree of obstruction was present in the eight patients in whom six-hour films were not obtained. In four of these eight patients the stomach was markedly dilated to several times its normal size and six showed retention in 24 hours, amounting to 40% and 50% in two patients.

What results did we obtain in the 36 patients who were treated as outlined? First, the obstruction was relieved in all patients. Second, progress X-rays showed no six-hour retention in all patients. The time interval between the initial and progress X-rays averaged 9.2 days but varied from five to 21 days.

In subsequent follow-ups, recurrent obstruction occurred in nine of the 36 patients. Twenty-seven had no further obstruction. Five patients died of causes unrelated to the ulcers.

Of the 23 patients who continued with medical treatment, follow-up was 56 months or almost five years. Only one of the 23 patients developed recurrent obstruction which was relieved by further medical treatment.



Twenty-two of the patients had no further episodes.

The patients subsequently undergoing operation numbered 13 of the group of 36. All 13 had responded initially to medical treatment with relief of their obstruction. The average time interval between their episodes of obstruction to the time of operations was 47 months and varied from 3½ months to nine years. The primary reason for operation, as far as we could determine, is of considerable interest. We had insufficient evidence in four patients, because they were operated upon elsewhere. Eight of the 13 had recurrent obstruction. We believe that one patient operated on, with symptoms of obstruction for one week, six years after the original episode, would have responded to medical treatment. One patient had no evidence of recurrent obstruction. Four did not follow medical treatment, one of whom could not speak or understand English. Here is the crux of the problem of peptic ulcer. Almost all of the patients who do not respond to medical treatment are patients who do not follow such treatment. As Dr. Walter Palmer has asked, "Is it the ulcer that is intractable or the patient?" In conjunction with this, almost all operations for ulcer are elective operations. They are not done because of any absolute indications, but merely because the patient prefers an easier method for caring for his ulcer (surgery) than medical treatment. It is of interest that none of the 13 patients who subsequently underwent operation had further trial on medical treatment before surgery.

How markedly dilated the stomach appeared initially was found to have no prognostic value; some of the patients whose stomachs were dilated to several times normal size responded well to the treatment outlined. There is nothing on the initial X-ray (amount of dilation of the stomach, narrowing of the channel, retention of food, etc.) which is of any prognostic value in determining whether operation will be necessary. The good results obtained in this group of patients suggest:

1. Intensive medical treatment is indicated for all patients with obstruction due to ulcer.



Figure IV-A. Obstruction in a "high pressure" executive who had an ulcer history of five years' duration. The cause of the obstruction is not visualized since none of the barium has left the stomach. (August, 1951.)



Figure IV-B. X-ray film after a barium swallow a week later clearly demonstrates the large ulcer crater. On medical treatment, the obstruction was relieved, and the ulcer crater disappeared. For the past 7½ years (since the episode of obstruction), the patient has remained asymptomatic and repeated x-rays of the stomach have shown no recurrence of active ulcer despite the tensions associated with his work.





Figure V-A. A three hour retention film in a patient with obstruction due to duodenal ulcer.

2. Recurrence of obstruction is not frequent—75% of the group had no such recurrence in 56 months.

3. A recurrent episode of obstruction may also well deserve a trial on further medical treatment.

## II. Penetrating Duodenal Ulcer

Penetration of a duodenal ulcer is allegedly another indication for surgery. Many patients, however, with a penetrating ulcer will respond to adequate and intensive medical therapy. Some of these patients may require a more intensive program for the first week than those without this complication; such patients may require a "half-hour schedule" with bland food or milk on the hour and antacids on the half hour.

The diagnosis of penetration of a duodenal ulcer can frequently be made clinically. There may be a change in the patient's symptoms; pain that originally was immediately relieved by the use of antacids, no longer is. The pain may radiate into the

back, or may be primarily in the back. Occasionally the penetration of the ulcer posteriorly may result in pancreatitis, causing an elevation of the serum amylase.

Roentgen examination, after a barium meal, may show the penetration of the ulcer, but the depth of the crater may be obscured on the initial examination by severe spasm. Frequently, the penetration of the ulcer can be better visualized after relief of the spasm by seven to 10 days' intensive medical treatment.

## III. Postbulbar Ulcer—Ulcer in the Second Part of the Duodenum.

Peptic ulcer distal to the bulb is considered difficult to heal medically and by many to be a "surgical" ulcer. The incidence of postbulbar ulcer has been reported as high as 10% of all duodenal ulcers by some, but in our experience postbulbar ulcers are relatively rare, and less than 2% of all duodenal ulcers. Patients with this type of ulcer may require more strict management, but again, they can respond to such medical treatment.



Figure V-B. Six weeks later, the stomach is considerably smaller and there is no evidence of obstruction. This patient has continued asymptomatic since the episode of obstruction in August, 1954.



Figure VI-A. Dilated and obstructed stomach in 1954. The duodenal bulb is not visualized, but subsequent x-rays showed the obstruction to be due to duodenal ulcer. The patient responded to medical treatment.



Figure VI-B. Over three years later (October, 1957), x-rays of the stomach showed no evidence of either an active ulcer or obstruction.

#### IV. *Anastomotic or Marginal Ulcer*

These ulcers may be called "surgically induced" ulcers, since the patients did not have an ulcer in this location before operation. Patients with marginal ulcers do not respond so well to medical treatment as do those with simple duodenal ulcers. These are also considered by many to be "surgical" ulcers. If a vagotomy and gastroenterostomy have been done originally, then a gastric resection frequently is done. If the first operation has been a resection, then vagotomy is done. If both vagotomy and resection have been done previously, then there is nothing left for the poor patient but to lose more of his stomach with a further resection. Immediate operation for these patients with a marginal ulcer, however, is not necessary, as many will respond to intensive and adequate medical treatment and certainly deserve such a trial.

Marginal ulcers<sup>7</sup> seldom develop after gastric resection for gastric ulcer in contrast to

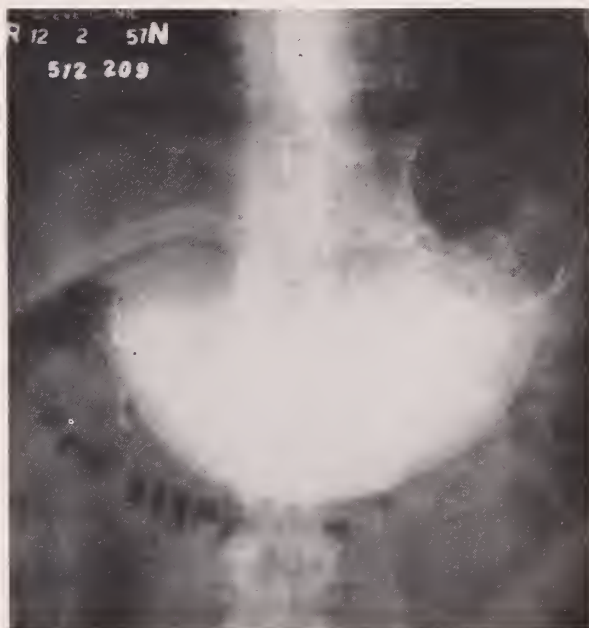


Figure VI-C. Two months later (December, 1957), the patient returned with recurrent obstruction. Roentgenograms show the stomach to be dilated and to contain food residue. Again the obstruction was relieved by medical treatment, but the patient returned three months later with a third episode of obstruction. With such a rapid recurrence of obstruction, surgery was advised and the patient was operated upon.





Figure VII-A. Patient with pain in the back was referred originally to the Orthopedic Department. However, his back pain was relieved by antacids. Roentgenogram after a barium meal shows a large penetrating ulcer.

the incidence after operation for duodenal ulcer.

### V. Hemorrhage

Massive gastrointestinal hemorrhage can be one of the most serious complications of ulcer, and frequently is threatening to life. Opinion concerning medical or surgical treatment varies widely despite the large number of reports in the literature on the subject. Tate Miller<sup>1</sup> treated 400 bleeding ulcers medically with a mortality of only two (0.5%). R. C. Brown<sup>2</sup> reported four who died, of 201 patients treated for massive hemorrhage, two of the deaths being due to aggravation of other diseases. In Buffalo, Stewart et al<sup>3</sup> reported 25 who died, of 193 patients with massive bleeding who were subjected to operation.

We prefer treating the bleeding ulcer medically when possible. The stomach is washed with a large Ewald tube, and continuous suction thereafter with a Levin tube is ap-

plied to the stomach. As soon as nausea stops, the suction is discontinued and a strict medical regimen with food or milk on the hour and antacid on the half hour is instituted. Adequate neutralization of gastric acidity is essential. Transfusions are given to replace the lost blood; we attempt to bring the hemoglobin to 10.0 grams. Frequent determinations of the hemoglobin, hematocrit, and blood volumes are made. If in the first 12 to 24 hours there is any evidence that bleeding has not stopped, or has recurred, operation is advised. If operation is going to be necessary we prefer that it be done in the first 12 to 24 hours, rather than three to six days after the onset of bleeding.

Interval operation, when the patient is in good condition, for repeated episodes of bleeding from an ulcer is much less hazard-



Figure VII-B. Spot film showing the large ulcer crater penetrating posteriorly. The patient had been taking 1500-2000 mg. of demerol daily for his pain for the previous two years. On adequate ulcer therapy, his pain was relieved, he required no demerol, and the ulcer healed. Despite the large amounts of demerol, the patient had no withdrawal symptoms when the demerol was stopped. He had remained free of pain and any roentgen signs of an active ulcer for the past 4½ years.



ous for the patient, and is attended with less morbidity and mortality than that done during or shortly after an episode of massive bleeding. Two to three episodes of massive hemorrhage are usually sufficient to make interval operation advisable. This advice must vary with the individual patient, depending on how serious the episodes of gastrointestinal hemorrhage were, rather he had been given and followed adequate medical treatment previously, age, general condition, etc.

## VI. Perforation

Seeley and Campbell<sup>10</sup> reported a mortality of 1.5% in 134 patients with perforation who were suitable for operation but who were treated by the non operative method.



Figure VIII-A. The roentgenologist diagnosed carcinoma of the second part of the duodenum, because of the apparent filling defect present. Because of a past history of duodenal ulcer, the difficulty of operating on the second portion of the duodenum (requiring a Whipple type of procedure if it were malignant), and because of the poor prognosis even with surgery for carcinoma of the duodenum, we elected, in consultation with a surgeon, to treat the patient on an intensive medical program for ulcer. Frequent progress visits were obtained.



Figure VIII-B. Progress x-ray of the stomach and duodenum showed the duodenum to be normal, with disappearance of what previously has been interpreted as a filling defect. In retrospect, the patient had a large penetrating ulcer of the second part of the duodenum; the ulcer caused sufficient spasm to simulate a filling defect. This patient has been followed for eight years, and has had no recurrence of ulcer pain.

They also reviewed the recent literature and found a mortality of 8.7% of 1,622 patients subjected to surgical closure; the mortality in the non operative series of 784 operable cases was 4.5%.

In general, we think that perforation is an indication for operation. Our experience in the non surgical treatment has been limited to three patients, and was successful in each. They were ideal candidates for this type of therapy, each having perforation a short time previously on an empty stomach.

Patients who have had a perforation frequently have further difficulty with ulcer and other complications. These patients should stay on a fairly strict ulcer regimen in an attempt to prevent recurrences of their ulcers. It is unfortunate that a more definitive operation than simple closure of the perforation usually is not done. The French



Figure IX-A. Spot film after barium swallow showing a huge marginal ulcer in a patient who developed pain and one episode of hemorrhage following gastric resection. The marginal ulcer was so large that one roentgenologist thought the ulcer was a "pocket resulting from the gastroenterostomy."

Figure IX-B. After medical therapy for ulcer, progress roentgenograms of the stomach show that the ulcer crater has disappeared. The excellent symptomatic response of the patient and the roentgen disappearance of the crater demonstrate conclusively



that the patient did have a huge marginal ulcer. Anastomotic ulcers can be difficult to demonstrate roentgenologically, but we believe this ulcer was well shown in this patient. Despite the fact that marginal ulcers can become quite large and penetrate deeply as in this patient, it is possible for them to heal on adequate medical therapy.

have reported gastric resections for the perforated ulcers rather than the simple closures; resection in the presence of perforation may be more hazardous, but should result in fewer recurrent ulcers.

## VII. *Gastric Ulcer*

All gastric ulcers are considered by a few to be surgical ulcers, not because of their lack of response to medical treatment, but because a small percentage are malignant. With present diagnostic methods utilizing X-rays, gastric analysis, gastroscopic examinations, gastric cytology and frequent progress studies, the error of diagnosis of a benign ulcer, which is really malignant, should not be greater than 1 or 2%. In our hands<sup>6</sup> recently, gastric cytology has been 94% accurate in the diagnosis of gastric carcinoma. Many large, benign gastric ulcers<sup>11,12</sup> can heal extremely rapidly on adequate medical treatment, so why not treat them for three to six weeks, making careful progress studies? If the ulcer is malignant, a three to six weeks' delay in operation should have no basic effect on the prognosis. It is imperative, however, that progress studies be obtained of the patient with the gastric ulcer that is treated medically.

## VIII. *Treatment*

For the first week of treatment of many of the patients with a complicated ulcer, and for those whose distress is not relieved promptly, by the preceding, a half-hour program with food or milk on the hour and antacid on the half hour is instituted. These patients are also awakened and given an ounce of antacid every 2½ hours during the night. When all symptoms have disappeared for several days, then the preceding hourly schedule is reinstituted.

An outline of the basic treatment for active ulcer is as follows: First, adequate rest and relaxation are most important. A vacation can help. It is known that an ulcer will heal while a patient is on a fishing trip. If a patient is working nights, or split shifts, a regular day shift is preferable. A patient should not have two jobs. Second, the patient is asked to avoid anything that in-



creases gastric acidity, such as coffee, tea and alcohol. Smoking is restricted. Third, a bland diet, fairly liberal with food or milk, on the even hours to neutralize gastric acidity is prescribed. Fourth, antacids — aluminum hydroxide preparations, two drams, on the odd hours are prescribed. In this way the gastric acidity in the stomach is neutralized every hour from arising to retiring. Fifth, among supplemental measures, the anticholinergic drugs are more effective than antispasmodics. The patient is given mild sedation with vitamin supplements.

All patients are asked to return in six to eight weeks for progress gastric acidity tests and X-ray examination of the stomach. In six to eight weeks the ulcer is almost invariably healed, if they have followed the ulcer program.

If the ulcer is not healed, almost always it is because the patient has not followed the outlined program. If the ulcer is healed, we ask him to follow a modified treatment for inactive ulcer, to prevent recurrences, not to heal an ulcer. First, we ask him to continue the avoidance of nervous tension. Second, the avoidance of stimulants to gastric acidity. Third, a liberal bland simple diet with milk 2½ hours after meals. Fourth, antacids one hour after each meal and at bedtime. Fifth, we ask him to continue with the supplemental measures.

We stress to the patient the importance of resuming the intensive hourly ulcer schedule with any increase in nervous tension, any intercurrent infection, any surgical procedure, at the time of past recurrence of ulcer (spring and fall), and with any recurrence of ulcer symptoms.

The anticholinergic drugs<sup>13</sup> are much more effective in decreasing gastric acid secretion and motility than are the antispasmodics. We employ the anticholinergic drugs to tolerance. There is evidence that tolerance to any one of the anticholinergic drugs may develop, so it may be advisable to change the one used every two months.

Contraindications to the use of the anticholinergic drugs should always be kept in



Figure X-A. Recurrent ulcer (marginal) in a patient who had had a Bilroth I gastric resection for gastric ulcer. The development of a marginal ulcer following gastric resection for gastric ulcer is uncommon.



Figure X-B. Progress x-rays of the stomach show healing of the marginal ulcer. The patient has been followed for eight years with no recurrence of an ulcer.





Figure XI. Penetrating benign gastric ulcer high along the lesser curvature near the cardia. The patient also had moderately severe Laennec's cirrhosis contraindicating operation; in addition, a high gastric resection would have been required. The ulcer healed on intensive medical treatment.

mind. They should not be used in patients with glaucoma, coronary insufficiency, or cardiac decompensation, bladder-neck obstruction, achalasia, or in patients with pyloric obstruction until the obstruction is relieved.

In the treatment of ulcer the relief of stress cannot be over-emphasized. Dr. Sara Jordan discussed stress with an ulcer patient. The patient replied, "What you mean is that I should stop being a heller and be a what-the-heller."

Peptic ulcer is frequently a lifetime problem, not because of any difficulty in healing the ulcer but because of the marked tendency for repeated recurrences. Consequently, the simple modified ulcer schedule, designed to prevent recurrence of the ulcer should be followed for relatively long periods of time; this is particularly true when the life-habit pattern of the individual cannot be changed.

## IX. Irradiation for Peptic Ulcer

Irradiation has been used by some in the treatment of peptic ulcer for over 40 years; it was first used for this purpose by Brugle. Palmer and Kirsner<sup>14</sup> have treated over 1,500 cases of peptic ulcer with irradiation with a 250-kilovolt machine. Irradiation applied to the stomach decreases gastric acid secretion for variable periods of time, but as long as the acid secretion is depressed, the ulcer heals and remains healed.

We have used cobalt-60 teletherapy<sup>15</sup> as a means of delivering irradiation to the stomach in 80 patients with complicated peptic ulcers. The cobalt-60 was used as a supplement to medical treatment and in no way replaced the medical therapy outlined. The depth, of stomach dose, of 2,000 roentgens that was given was well tolerated, with minimal nausea or vomiting and no skin changes. Initially there was a reduction in gastric acidity in almost every patient. There was a gradual return of gastric acidity to pretreatment levels in some six to 12 months after therapy.

The initial symptomatic and roentgen response was good in all patients; progress X-ray studies six to eight weeks after therapy showed the ulcer to be healed in each patient. Five patients have developed recurrent symptoms and ulcers. While all patients treated with cobalt-60 had some indication for operation before therapy, only three have been operated on to date (average follow-up—two years). Irradiation with cobalt-60 may be indicated in many patients with complicated or "surgical" peptic ulcers that do not respond to conventional therapy. Operation may be avoided in some by this treatment.

### Summary

The patient with a peptic ulcer complicated by obstruction, penetration or in an atypical location such as postbulbar or marginal, or a patient with a gastric ulcer, will respond to intensive and adequate medical treatment. All of the patients with severe obstruction so treated did respond satisfactorily, and 75% (27 of 36) had no recur-



Figure XII. Gastric ulcer high along the lesser curvature near the cardia. This again would have required a high resection. On medical therapy, the ulcer was healed in four weeks. The patient has remained asymptomatic the past 18 months with no evidence of recurrent ulcer.

rence of the obstruction in a 56-month follow-up period. Examples have been shown of the other types of complications that have responded to adequate medical treatment.

Most failures in the medical treatment for peptic ulcer are due to inadequate treatment—either the patient has not been given adequate therapy or he has not followed the treatment outlined. We have seen patients with long histories of ulcers whose previous treatment has consisted of antacids, taken after eating (when they do not need the antacid since food neutralizes the gastric acid)

or antacids only when they have distress. Such therapy is grossly inadequate. With adequate treatment many of the most complicated ulcers will heal, and with continued minimum treatment remain healed.

## REFERENCES

1. Sippy, B. W.: Gastric and Duodenal Ulcer: Medical Cure by Efficient Removal of Gastric Juice Corrosion. *J.A.M.A.* 64: 1625, 1915.
2. a. Brown, R. C.: *Ulcer of Stomach, Duodenum, and Jejunum*, Oxford Medicine, Vol. 3, Part I:125, Oxford Univ. Press, New York, 1949.  
b. Brown, R. C.: Results of Medical Treatment of Peptic Ulcer, *J.A.M.A.* 95: 1144, 1930.
3. Lahey, F. H.: Treatment of Gastric and Duodenal Ulcer, *J.A.M.A.* 95: 313, 1930.
4. Grifone, J. W.: and Brown, C. H.: Results of Medical Treatment of Duodenal Ulcer Complicated by Obstruction. *GP* 18: 78, 1958.
5. Brown, C. H. and Hoerr, S. O.: Treatment of Duodenal Ulcer. *Postgrad. Med* 12: 308, 1952.
6. Kurt, E. J., Brown, C. H., McCormack, L. J., Hazard, J. B., and Belovich, D.: Exfoliative Cytology as an Aid to the Diagnosis of Gastric Carcinoma, *Cleve. Clin. Quart.* 25: 133, 1958.
7. Brown, C. H. and Hoerr, S. O.: Marginal Ulcer Following Gastric Resection for Gastric Ulcer, *Cleve. Clin. Quart.* 19: 213, 1952.
8. Miller, T.: Four Hundred Upper Gastrointestinal Hemorrhages with a Mortality of Zero in Ulcer Cases Medically Treated, *Gastroenterology* 27: 790, 1954.
9. Stewart, J. D., Cosgriff, J. H., and Gray, J. G.: Experiences with the Treatment of Acutely Massively Bleeding Peptic Ulcer by Blood Replacement and Gastric Resection, *Surg., Gyn. & Obst.* 103: 409, 1956.
10. Seeley, S. F. and Campbell, D.: Nonoperative Treatment of Perforated Peptic Ulcer; A Further Report. *Surg., Gyn. & Obst. Internat. Abstr. Surg.* 102: 435, 1956.
11. Brown, C. H., Fisher, E. R., and Hazard, J. B.: The Relation Between Benign Ulcer and Carcinoma of the Stomach: Report of Eight Cases of Malignant Transformation. *Gastroenterology* 22: 103, 1952.
12. Brown, C. H.: Benign Ulcer and Carcinoma of the Stomach, *J. Am. Ger. Soc.* 1: 117, 1953.
13. Brown, C. H.: Further Experience with Anticholinergic Drugs: A Clinical Appraisal in 201 patients, *Cleve. Clin. Quart.* 20: 415, 1953.
14. Levin, E., Palmer, W. L., and Kirsner, J. B.: Observations of the Value of Gastric Irradiation Therapy in the Treatment of Duodenal Ulcer, *Gastroenterology* 32: 42, 1957.
15. a. Brown, C. H. and Hays, R. A.: Cobalt-60 Teletherapy for Complicated Peptic Ulcer, *Cleve. Clin. Quart.* 24: 17, 1957.  
b. Brown, C. H.: Complicated Peptic Ulcer Treated by Cobalt-60 Teletherapy, *Henry Ford Hosp. Med. Bull.* 5: 276, 1957.

Cleveland Clinic, 2020 East 93rd St., Cleveland 6, Ohio

By learning to use what retinal elements are still functioning, many with sub-normal vision are able to do visual work not previously thought possible.

## THE VISUALLY HANDICAPPED

### Or Are They?

IN OUR SOCIETY of today a small group of handicapped individuals may be overlooked because their small size does not or cannot demand the overall attention. Yet this group's position may gain the attention of society and then efforts are made to assist their specialized problems. This, I feel, is what is occurring today for the visually handicapped individual, and, in ways, it is revolutionizing our thinking on the employment and education of such individuals.

Under the sponsorship of Vocational Rehabilitation, a clinic to assist the partially sighted individual was started at the University of Oklahoma School of Medicine on April 15, 1958. Through the remainder of the year 103 individuals were examined and the results have been both gratifying and encouraging.

To speak of the partially sighted one immediately thinks of the legally blind, those whose best corrected vision is 20/200 or less. The term, legally blind, is a classification usually used for determining eligibility for assistance or for obtaining an extra

#### ROBERT W. KING, M.D.

Robert W. King, M.D., graduated from the University of Oklahoma School of Medicine in 1950. He is certified by the American Board of Ophthalmology and his practice is limited to that specialty.

In addition to his private practice, Doctor King is Instructor in Ophthalmology at the University of Oklahoma Medical School. He is a member of the American Academy of Ophthalmology and Otolaryngology.

income tax deduction. But, from our experiences, many of these now are gainfully employed and others are obtaining a useful education. Aids have to a large extent made these individuals self sufficient and able to take their place in society with pride and respect.

Working with the partially sighted individual requires patience and understanding by both the examiner and the individual being examined. Because of the tedious word by word reading the younger individuals adapt themselves more readily than do the



older. The higher percentage of failures is in the elderly who do not wish to change life long habits. Those with recent onset of visual loss are more difficult to work with because of the yet remaining hope that some miraculous operation or medicine will return their lost vision. In instances of long standing visual loss, reading efficiency sometimes becomes practically non-existent and encouragement must be given to develop this ability again. Failures occur in this category where the individual could see the print, but didn't know or remember what he was reading. Assistance often can be given for distance as well as for near vision, but each case has to be studied separately and the appropriate aids given. Examinations were done similarly to those previously described.

"Sight Saving" and "Sight Conservation" are two phrases often used around this group of individuals, and, at times, have a direct influence upon their fears of losing what vision they have. These people have to be reassured and convinced that using their eyes will do them no harm. "Sight Saving" and "Sight Conservation" are well used in other aspects of protective programs for the public, but these two phrases are poorly chosen for use with those of limited vision. In regards to the partially sighted, probably we should change to the positive approach and call them "Sight Utilization" programs.

Another problem has existed in working with children. Any sub-normal visual individual has to bring the reading close until the image is large enough to permit reading. Both parents and teachers yet have the strongly instilled belief that it is dangerous to the child's eyes to hold the reading so near. Consequently, the child is often instructed to move his reading further out, and the child immediately becomes confused and frustrated as the reading is no longer clear. An educational program would help this situation.

In this group 103 patients are included. These were referred by other ophthalmologists after complete eye examination. Of these, aids or glasses were prescribed for 83. Six could be given reading vision but the adjustment was more than they wished

to be subjected to. Five had sufficient vision for their work and no additional aids were prescribed. In this category will be those who will have to return at a later date when their failing accommodation will make it necessary. Eight could not be helped. This represents 80% being helped which is in line with other studies. Careful screening by the referring ophthalmologist greatly affects this number.

Others have noted that many of these individuals can be aided by glasses prescribed from the practitioners lens set. In this study this fact was corroborated. Optical aids are the microscopic lenses, scopic lenses, aspheric lenses, binoculars, telescopes, and hand magnifiers. Optical aids for 47 were prescribed and 36 received assistance through glasses prescribed from the trial lens set.

Following is a list of types of pathologic condition seen in this study. These are grouped under the classification of: (1) those helped; (2) those that could be helped but could not adjust; (3) those whose present lenses are satisfactory and didn't need further assistance; and (4) those that could not be helped.

	Total	(1)	(2)	(3)	(4)
Macular Degeneration	21	15	3	0	3
Optic Atrophy	16	12	1	1	2
Macular chorio-retinitis	13	13	0	0	0
Myopia, high	9	7	2	0	0
Amblyopia, congenital, and associated with high refractive error	8	6	0	1	1
Corneal scars, dystrophy, and keratitis	7	7	0	0	0
Detached retina	4	2	0	1	1
Glaucoma	4	4	0	0	0
Retinitis pigmentosa	3	2	0	0	1
Congenital cataracts, operated	3	3	0	0	0
Aniridia with dislocated lens	3	2	0	1	0
Albino	3	2	0	1	0
Cataract senile, unoperated	2	2	0	0	0
Diabetic retinopathy	2	2	0	0	0
Coloboma of retina and choroid	2	2	0	0	0
Dislocated lens	1	1	0	0	0
Congenital glaucoma	1	1	0	0	0
Retrolental fibroplasia	1	0	0	1	0
	103	83	6	6	8

Several dramatic cases are worthy of special note. One college girl with congenital cataracts was wearing a +3.00 add in her bifocals and was unable to read her textbooks. When able to read 5 point print by the assistance of microscopic lenses, she made the heart rending statement, "Am I able to see the print the way you do?" She has since given up her reader service and is continuing her education.

One gentleman was first seen wearing -19.00 lenses with which he could not read the 20/400 letter. On the ten foot chart with -27.00 lens he was able to read the 10/155 letters. Contact lenses were then tried and after the final adjustment he was able to read 20/60. This, of course, was some seven times better than when first seen, so he was quite happy with the results.

A 28 year old housewife had bilateral chorio-retinitis eight years previously. Though the lesions were inactive, she apparently had never been refracted during this time. She was unable to identify the 20/400 letter. She was refracted on the ten foot chart and could be improved to 10/77.5 line or equal to 20/150. To most of us 20/150 doesn't seem very good, but to her the glasses meant she could see three times as well.

A 21 year old lady had congenital bilateral macular chorio-retinitis with a best corrected vision of 20/300. She had obtained her high school education through the school for the blind. She was given a microscopic bifocal for reading and a monocular telescope for board work. She is now doing college work without any special assistance.

One of the most revolutionary opinions formed to date from this work has been in regards to the partially sighted school child. This was called to our attention by one girl who had obtained her highschool education through the school for the blind. When asked to read braille, she immediately did so, but by sight rather than by feel. From this we began to wonder whether these children were properly being classified for schooling; that is, school for the blind, sight saving classes, and public school.

With this in mind, all cases that were congenital in etiology were reviewed. Out of

the 103, 31 were found to have the condition at the age they started to school. These were classified as eleven with optic atrophy, six with congenital amblyopia, four with aniridia and/or dislocated lens, three with congenital cataracts, three with albinism, two with congenital coloboma of the retina and choroid, one with congenital glaucoma, and one with congenital macular chorio-retinitis.

Of those with optic atrophy, two stopped their education in the 6th grade because of visual difficulties. Two were presently in the 6th and 8th grades and were having difficulties with their work until given optical assistance. One went through the 8th grade at the school for the blind, but with optical aids has been shifted to regular school. Three had an associated near-sightedness and were able to attain highschool diplomas. One obtained highschool education in public school but had to have all of his reading done for him. The other two went through the school for the blind. One of these was able to obtain 4 point reading through the aids, and if available at the time, the individual could well have gone through regular school.

In the six with congenital amblyopia that was usually associated with a high refractive error, two dropped out in the fifth grade and one in the ninth. One is presently in the fifth grade but was beginning to have trouble with reading. One with 20/60 vision in the better eye stopped at the tenth grade. One was able to complete a highschool education.

There were four with aniridia and/or dislocated lenses. One is presently in college but has had the use of Kollmorgen Lenses. One is in the fourth grade and able to hold print close enough to read. One is in the 6th grade and had to have optical aids to continue. One is in the 9th grade and was unable to read until prescribed optical aids.

Of the three albinos, one in the 4th grade was having reading difficulties, but now is able to continue with assistance. One completed highschool. The other is a college freshman but has 20/60 vision and is still able to read 5 point print with his distant correction.



There were two with congenital coloboma of the retina and choroid. One went through the school for the blind and with aids is now able to read 4 point print. One with 20/60 vision was able to go through the tenth grade.

The one with congenital glaucoma is in the seventh grade. Her vision tends to fluctuate but at times is unable to read. Optical aids will permit her to continue reading textbooks on her difficult days.

The one with bilateral congenital macular chorio-retinitis went through highschool at the school for the blind. Since given optical assistance she is presently obtaining a college education without any special services.

After reviewing this group several facts do stand out. As long as the individual has sufficient accommodation to bring reading close enough to do the work, they seemed to be able to stay in school. Those with 20/200 vision appear to drop out around the fifth to seventh grades. Those with a little better sight such as 20/60 often would make it about the tenth grade. And those that had a combined near-sightedness with their difficulties seemed to make it through high-school.

In this group there are nine presently in gradeschool and highschool. Two in the fourth and fifth grades respectively have enough reading vision that no assistance has been ordered except for the suggestion of a monocular telescope to see the board with. One has been shifted from the school for the blind to public school. Six had reached the point where reading was becoming extremely difficult. This condition has been relieved by the use of optical aids and their education is continuing uninterrupted. Typical of this is a nine year old albino with a best corrected vision of 10/70. Until this year he has not had any significant trouble with his education. This year his reading vision dropped to 12 point with his distant correction only. This permitted only short periods of reading before he had to stop. By giving a +2.00 add bifocal he again was able to read 4 point print comfortably and is now doing satisfactory work. In time he will have to have stronger bifocals, but it has

stopped all considerations the parents had of changing him to the school for the blind.

### Summary

Assistance in aiding the partially sighted individual is becoming an accepted possibility in evaluating a person's vision. Legal blindness is no longer a criteria that the individual is beyond help. A person's visual capabilities need no longer, in certain instances, be measured by the ability of reading a Snellen or Jaeger chart, but is more closely aligned with their ability to utilize whatever retinal elements are yet functioning.

The extent of visual rehabilitation for these people has been exaggerated by television, newspapers, and magazines, and false hopes have been created. Often they are lead to believe that these aids will again permit working at a desk, doing many types of industrial work, and even driving a car. Rarely does a correction rehabilitate these individuals to see at all distances, to walk in the street with the aids on, or to read normally at 16 inches.

The length of the decreased vision plays an important role on the emotions of the individual and their determination to adjust to the new type of vision. Those with recent onset of visual loss hope for return of the sight they have lost. Anything less than this does not seem worth while and they fail to make the necessary effort for readjustment. Those with visual losses of longer duration have already accepted being deprived of certain visual activities and greatly appreciate any visual improvement, even of a small degree. In a few, one will encounter complete lack of effort for fear they might loose blind assistance they are presently receiving. The greatest amount of failure to help is in the elderly who find it too difficult to change life long habits, and, to some extent, are hindered by a tremor often associated with their age.

In our first group being studied, there were 103 patients. Of this group there were only six or 6% that could not be helped. There were nine or 9% that could be helped but who did not want to make the adjustment. This represents a 15% failure of those seen.



Five or 5% could not be improved beyond their present glasses or aids, and were able to continue their work or education. 83 or 80% were prescribed for.

Education of the partially sighted child needs additional consideration. From the 103 patients, 31 were found to have their condition present before entering school. Although there are not sufficient controls to be definite in our views, the results imply that many of these had to interrupt their education because of loss of reading ability associated with decreasing accommodative power. Thus, as long as they were able to hold the print close enough to get the needed magnification, they were able to continue their education. Those who did not obtain the assistance of aids seemingly would stop their education between the fifth and seventh grades. Two with a slightly better vision of 20/60 completed the tenth grade. Many that had an associated near-sightedness were able to finish highschool.

In this group there were seven that reached the place they were unable to handle their reading. It is felt that with optical aids, these will now be able to continue their education. Our present plan that has worked

the best is to use whatever strong plus lenses it takes for adequate reading vision. Often this was in the form of bifocals. For boardwork, the 10X monocular telescope has proven to be a useful tool. A person with 20/200 vision can read 20/20 through this aid. By this method there are some that have been diverted from obtaining their education in the school for the blind. In instances it permits the child to continue his education in his home town rather than having to go elsewhere. There is a strong emotional factor present of wanting to live with their family that undoubtedly helps the child's education. With these aids now readily available, we may have to re-evaluate the "Sight saving" classes and the proper place of education of the partially-sighted child.

#### REFERENCES

1. Fasanella, R. M.: Complications in Eye Surgery, Philadelphia, Saunders, 1957.
2. Krieger, A. A.: Low vision optical aids, Rehabilitation Service Series 393 (Department of Health Education and Welfare) May 9, 1957.
3. Fonda, G.: Binocular corrections for low vision, Am. J. Ophth. 45: 23-27, (Jan.) 1958.
4. Lebensohn, J. E.: Newer optical aids for children with low vision. Am. J. Ophth. 46: 8130718, (Dec.) 1958.

1200 N. Walker, Oklahoma City, Oklahoma

---

ADMIRATION, *n.* Our polite recognition  
of another's resemblance to ourselves.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

# Malignancy of the Rectum and Sigmoid Colon

**ALTHOUGH** numerous series of carcinoma of the rectum and sigmoid colon have been reported, none have been analyzed as to prognosis in the younger age groups. Many authors have expressed opinions but none of these have been based on actual survival rates among patients under forty. The following is a review of our own experience with carcinomas found in patients under forty years of age.

## Material

During the fifteen year period of January, 1944 to January, 1959, twenty-one cases of carcinoma of the anal canal, rectum and lower sigmoid colon were encountered in patients under forty. Nine occurred in males and twelve in females. The youngest patient was eighteen years old.

Bleeding and increasing obstipation were the most frequently encountered symptoms. Other complaints were tenesmus, pain, weight loss and unhealed anal wounds.

There were two squamous cell carcinomas of the anal canal. Of the nineteen adenocarcinomas, nine occurred in the rectum,

**PAUL M. VICKERS, M.D.**

**RALPH C. DENNY, M.D.**

Since graduating from the University of Minnesota School of Medicine in 1937, Paul M. Vickers, M.D., has been certified by the American Board of Proctology and his practice is limited to that specialty. In addition, he is Associate Professor of Surgery at the University of Oklahoma School of Medicine.

Doctor Vickers is a member of the American Proctologic Society, the American College of Surgeons, the International College of Surgeons and the Midwest Proctologic Society, among others.

Ralph C. Denny, M.D., graduated from the University of Oklahoma School of Medicine in 1952. Doctor Denny limits his practice to his specialty, Proctology. He is a member of the Oklahoma City Surgical Society and a member of the Candidate Group of the American College of Surgeons.

eight in the rectosigmoid and two were in the low sigmoid. Three patients were inoperable at the time of examination and in two others palliative colostomies were performed. The remaining sixteen patients had

definitive surgical procedures. Seven of these were combined abdominoperineal resections of the rectum and the remaining nine were anterior resections of the recto-sigmoid with primary end-to-end anastomosis. There were no post-operative deaths. Nine of the resected malignancies were classed as Broders Class II, Dukes Class B, or C.

### Results

Eleven of the 21 patients are surviving one or more years following operation for their disease. In one of these there has been a local recurrence requiring a colostomy for obstruction. The average survival time for those patients who died of their disease, was eight months. The over-all survival is 10 of 21 or 47%. Of those having definitive surgery, 10 of 16, or 62.5%, are surviving from one to seven years without recurrence.

### Discussion

There is a general clinical impression that malignancies of the rectum and colon in the young have a very poor prognosis. In a recent article on the subject, Ezzo, Sullivan and Mack,<sup>1</sup> reported a survival rate of 21% in 32 patients under 40 with carcinoma of the rectum or colon. Daland,<sup>2</sup> in a study of 100 cases of untreated carcinoma, stated, "A study of the degree of malignancy, as made by microscopic study, failed to show any relationship between the length of life and the degree of malignancy." Lees and Parks<sup>7</sup> in a histological study of malignancies in 105 patients under 30, were unable to demonstrate histologic changes different than those found in a similar group of older persons. They quoted Greenwood<sup>3</sup> as stating, "... we cannot confirm the general opinion that age at onset is an important factor of duration." Dukes,<sup>3</sup> on the other hand, in an analysis of 1000 cases of carcinoma of the rectum reported lymphatic metastases in 72% of patients under 40 as opposed to 51% in those between 40 and 59. It is evident that there is no general agreement as to the prognosis of the young patient with carcinoma of the rectum or colon. Survival rates of these malignancies in all age groups is approximately 40%.<sup>1,6,8,9</sup> Our series compares favorably with this.

About 10% of the malignancies of the rectum and colon occur before the age 40.<sup>1,3,9</sup> It is doubtful that any one series will contain a large enough number of young patients on which to base reliable conclusions. For this reason we think that several series should be reported so that these cases can be collected and an analysis of survival rates can be made. In this way it is hoped that the true prognosis for young patients can be determined.

### Summary

1. There are no statistical studies on which to base prognosis of the patient with carcinoma of the rectum or colon before the age 40.
2. The over-all survival rate for these malignancies in all age groups is approximately 40%.
3. In a series of 21 patients with carcinoma of the anal canal, rectum or low sigmoid colon, we have reported an over-all survival rate of 47.8%.
4. Because of the relative infrequency of malignancy in the young, we urge the reporting of small series so that a collection of cases can be analyzed.
5. We believe that the prognosis for the young patient with a carcinoma of the rectum or colon will compare favorably with that of all age groups.

### BIBLIOGRAPHY

1. Cattell, R. B.: Carcinoma of the rectum and colon. *Surg.*, 14: 378-386. (Sept.) 1943.
2. Daland, Ernest M.: Untreated cancer of the breast. *Surg., Gynec. and Obstet.* 44: 264-268 (Jan.) 1926.
3. Dukes, C. E.: Cancer of the rectum: An analysis of 1000 cases. *J., Path & Bact.* 50: 527-529 (May) 1940.
4. Ezzo, J. A., Sullivan, J. F. and Mack, R. E.: Carcinoma of the colon under the age of forty. *All. Int. Med.* 49: 321-325 (Aug.) 1958.
5. Greenwood, M.: Quoted by Lees, J. C. and Park, W. W.
6. Hollstrand, D. E.: Carcinoma of the colon and rectum. *Surg., Gynec. and Obstet.* 99: 234-240 (Aug.) 1954.
7. Lees, J. C. and Park, W. W.: The malignancy of cancer at different ages: A histological study. *Brit., J., Cancer* 3: 186-197 (June) 1949.
8. Shallow, T. A., Wagner, F. B. and Colcher, R. E.: Clinical evaluation of 750 patients with colon cancer. *Ann., Surg.*, 142: 164-175 (Aug.) 1955.
9. Waugh, J. M., Black, M. A. and Gage, R. P.: Three and five year survivals following combined abdominoperineal resection, combined abdominoperineal resection with sphincter preservation and anterior resection for carcinoma of the rectum and lower part of the sigmoid colon. *Ann., Surg.*, 142: 752-757 (Oct.) 1955.

Paul M. Vickers, M.D., 528 N.W. 12th, Oklahoma City  
Oklahoma



## THE ADDICT'S BAG OF TRICKS

**ARNOLD MOSELEY, Chief**

Narcotics Enforcement Division  
Attorney General's Office

PHYSICIANS MUST CONSTANTLY be on guard against the narcotic addict, who cleverly preys on the sympathy of ethical practitioners in his attempts to obtain narcotics illegally.

Some of the most common ruses and gimmicks used by addicts are detailed in the following paragraphs.

1. Subject will admit addiction and will request a prescription for enough tablets to hold them until they can reach the hospital to which they allege they are en route. This is oft times supported by a true or forged correspondence with the hospital.

2. Addicts who prefer some of the synthetic narcotic drugs will claim that they are en route to the hospital for treatment and that already they are reducing their habit through the use of Dolophine or Demerol.

3. Malingering kidney stones—The subject will, upon examination, produce blood in urine by self-inflicted wounds that will many times fool the physician and cause

narcotics to be administered and prescribed.

4. Subject will claim severe back injury that causes intense pain. This will oft times be supported by a stolen X-ray film of back injury. This method is used more often in the smaller towns.

5. Subject will claim severe pain in chest that could give rise to suspicion of tuberculosis and through self-inflicted wound at the proper moment can produce blood in the sputum to further the suspicion.

6. An addict will claim to be the patient of some doctor who is out of town or in the hospital. The daily newspaper provides the source of this information.

7. Claiming blindness that can be temporarily corrected by the use of narcotic drugs and sight restored while under the influence has been successfully used by addicts to obtain desired drugs.

8. Subject will request a doctor drive fifteen or more miles out in the country to administer to a relative who has an incurable cancer and is in great pain. The subject will suggest that if the doctor cannot

\*Chief of the Narcotic Enforcement Division Attorney General's Office.

spare the time from his office he will get the prescription filled and deliver the "pain tablets" to the patient.

9. Subject will call a doctor at his home (away from his records) and claim that he is a former patient and is in need of paregoric for stomach cramps, requesting that the doctor call a druggist and issue a telephone prescription.

10. Subject may claim that he is a "registered addict" and has the authority to secure and use narcotics. There is no Federal or State provision for a "registered addict."

11. An addict with hemorrhoids may request a prescription for Laudanum, sweet oil and phenol. The presence of phenol may throw the doctor off guard. The addict knows how to separate these and you can feel sure this will not be used for hemorrhoids.

12. The addict may request the administration of a narcotic for a "hangover" alleged to have been caused by overindulgence in alcohol.

13. Addicts will often give a doctor the "rush act" by presenting themselves during peak hours, feeling that the doctor can be more easily persuaded then, or if there is an examination that it will not be thorough enough to disprove the alleged need for narcotics.

14. A false or forged letter from a doctor in another city addressed "To Whom It May Concern" that states the bearer has some condition that requires narcotic drugs

to alleviate the pain is used successfully by some addicts that travel the country.

15. An addict, having received one prescription for narcotics from a doctor, may, through the theft of printed prescription blanks, effect forgeries or tracings of the original. Guard your prescription blanks.

16. An addict will "re-hash" a doctor after the first prescription by telling him he lost the content of the first prescription when it spilled in the toilet stool.

17. Addict nurses having access to narcotics will often times substitute sterile water for narcotic solutions to cover up the shortage. This may result in your patients having a medical need for the drug to suffer great pain. Report these instances to narcotic agents.

18. Addicts will sometimes request a prescription for Morphine and Atropine, feeling that the presence of Atropine will throw the doctor off guard. The addict can remove the Atropine.

19. Subjects addicted to the synthetic narcotic drugs are often successful in obtaining Demerol or Dolophine because they are considered by too many doctors as not potent narcotics and are not addictive. There are many Demerol and Dolophine addicts.

20. An addict may effect a forgery of a narcotic prescription using your name and registry number that may come to your attention. If this happens, please notify immediately the State Narcotic Enforcement Division.

---

AFFLICTION, *n.* An acclimatizing process preparing the soul for another and bitter world.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.



MEDICAL

CENTER

## GIANT CELL PNEUMONIA

**GIANT CELL PNEUMONIA** was first described by Hecht in 1910.<sup>1</sup> Sporadic case reports of this condition have appeared in the literature since this time. The original concept considered the disease to be non-specific and caused by toxic stimuli in various conditions, such as rubeola, pertussis, diphtheria exotoxin, etc.<sup>2</sup> This concept has been changed considerably in the last 20 years.

Recently we observed a typical case of this condition. A report of the case and consideration of the etiology may be of some academic and practical value.

### Clinical History

A 12 month old Negro male was admitted with a three weeks history of upper respiratory infection characterized by fever and cough. At the time of admission two of the siblings were suffering from rubeola. The patient was breast fed and had had no vaccinations. He had experienced no childhood diseases.

The patient was a well developed, well nourished, colored male in moderate acute distress. He manifested a continuous cough and rhinorrhea. The pharynx was moderately injected. Numerous whitish ulcerated plaques were noted over the buccal mucosa. The breath sounds were quite harsh with scattered rales. The abdomen was not remarkable. The palms were very pallid. Neu-

### HIDEO NAMIKI, M.D.\*

Hideo Namiki, M.D., graduated from Maebashi Medical College, Japan, in 1949. Before coming to Oklahoma, Doctor Namiki was with the Department of Pathology, Yokohama University School of Medicine. He is now serving a residency in pathology at the University of Oklahoma Medical Center.

Doctor Namiki is a member of the Japanese Pathological Association and the Cancer Association of Japan.

rological examination was within normal limits.

The hemoglobin was 11.5 gm.%, the hematocrit was 33%, and the white blood cell count 12,600 with 61 neutrophils, five bands, and 34 lymphocytes. The urinalysis was negative. Skin tests were negative to tuberculin and histoplasmin. A sickle cell preparation was negative. An x-ray film of the chest was not remarkable except for slight increase in hilar markings.

The temperature varied between 101° and 102° F. The ulcerations of the tongue and gingival mucosa became progressively worse. X-ray films of the chest taken two days prior to death showed extensive interstitial infiltration compatible with interstitial pneumonia. The patient died on the 13th hospital day with progressive respiratory difficulty. Treatment at the hospital consisted of the administration of antibiotics and one transfusion for a sudden drop in hemoglobin to 7.5 gm.%.

\*This paper is from the Department of Pathology, University of Oklahoma Medical Center.



## Anatomic Findings

Examination of the buccal cavity revealed several rather large, irregular shallow hemorrhagic ulcers around the gingival border of the teeth. External examination was otherwise unremarkable. No skin rash was present. The *peritoneal cavity* contained about 5 ml. of straw-colored serous fluid. The margin of the liver was 6 cm. below the costal margin anteriorly in the right midclavicular line. Both *pleural cavities* contained about 2 ml. of straw-colored serous fluid, respectively. There were no adhesions in the pleural cavities. The *pericardial cavity* was unremarkable. The *heart* weighed 60/44 gm.\* and was essentially normal. The right lung weighed 140/64 gm.\* and the left 120/57 gm.\* The pleural surfaces were smooth and glistening. The lungs were rather bulky, subcrepitant and showed a slightly increased consistency. Focal areas of peripheral emphysema were noted. The lungs cut with ease to reveal increased redness alternating with areas of peripheral emphysema. No purulent exudate was produced on pressure. The tracheobronchial tree showed a markedly congested, roughened mucosa. The larger branches of the pulmonary arteries were unremarkable. There was moderate enlargement of the regional lymph nodes. The *spleen* weighed 30/28 gm. The malpighian corpuscles were quite prominent. The *liver* weighed 420/285 gm. There was a slight yellowish tint to the parenchyma indicating a gross appearance compatible with fatty metamorphosis. The *pancreas* weighed 20 gm. and appeared essentially normal. The *gastrointestinal tract* was not remarkable except for moderate enlargement of the lymphoid tissue of the mucosa. The *mesenteric lymph nodes* were moderately enlarged. The *adrenals* together weighed 3 gm. and were unremarkable. Each *kidney* weighed 40/34 gm. They were moderately congested. The remainder of the genito-urinary tract was grossly normal. The *brain* was not examined.

The tissues were fixed in 10% neutral formalin and stained routinely with Bullard's hematoxylin and eosin. Sections of the lungs, spleen and lymph nodes were also

stained with Periodic Acid-Schiff Reaction stain, Phosphotungstic Acid Hematoxylin stain, Reticulin fiber stain and Lendrum's stain for inclusion bodies.

The buccal mucosa, tonsils, thymus, salivary glands, appendix and urinary bladder were not examined as tissue had not been saved for microscopic examination.

## Histopathology

Only the pertinent changes will be described.

The lungs were markedly congested and revealed multiple focal areas of hemorrhage. The alveolar septa were thickened and infiltrated with numerous mononuclear cells. Hyaline membranes were noted on the surface of the alveolar ducts and alveolar septa. Many macrophages were present in the alveoli. The most striking histologic finding was the presence of numerous multinucleated giant cells. These cells were found most frequently in the alveoli, and possibly in the interstitial tissue, mainly in the vicinity of the bronchi and bronchioles. They were multiangular in shape, measuring from 50 up to 100 microns in diameter and provided with numerous (50 to 100) nuclei, the size of which was approximately 7 to 8 microns in diameter. The nuclei were diffusely distributed throughout the eosinophilic cytoplasm. Careful examination disclosed acidophilic, homogeneous staining round bodies, consistent with inclusion bodies, in the nuclei as well as in the cytoplasm. The sizes of the bodies were fairly uniform, averaging 3 to 4 microns. The alveolar septal cells were generally hyperplastic and fusing in areas, as if they were forming multinucleated giant cells. The above described giant cells were probably consistent with "Warthin-Finkeldey's giant cells." The bronchi and bronchioles were lined by squamous epithelium with definite keratinization. The bronchial walls were infiltrated with mononuclear cells. No multinucleated giant cells were noted in the bronchial mucosa. The pleura was not unusual except for focal areas of hemorrhage. Phosphotungstic acid hematoxylin staining revealed the "hyaline membranes" to be partially positive for this stain. The "inclusion bodies" were negative for P.A.S. stain and positive for Lendrum's

\*The first figure represents the weight recorded, the second figure is the expected weight for this age.



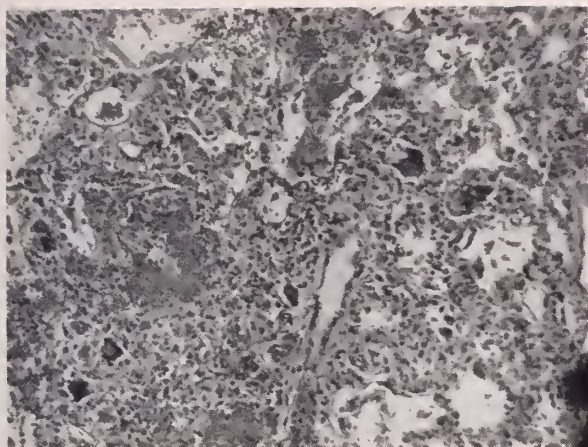


Figure 1. **Lung.** Interstitial pneumonia with thickening of the alveolar septa due to infiltration with mononuclear cells and lymphocytes, hyaline membrane (right lower corner), and multinucleated mesenchymal giant cells. Hemorrhage into the alveolar spaces is also present. H & E staining, 120X.

stain. Some of the multinucleated giant cells were found to be definitely located in the interstitial tissue by a reticulin fiber stain (Fig. 1 and 2).

The malpighian corpuscles of the spleen were moderately enlarged and accompanied by a slight reticulum cell hyperplasia. Multinucleated giant cells were seen in the majority of malpighian corpuscles. The giant cells were multi-angular and provided with numerous (at least more than 20) small, round to ovoid, hyperchromatic nuclei resembling those of lymphocytes. Intranuclear inclusion bodies similar to those found in the lung were present in some of the

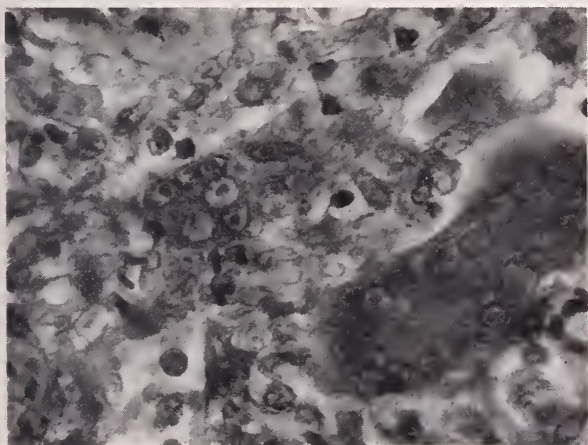


Figure 2. **Lung.** Multinucleated mesenchymal: giant cells (Warthin-Finkeldey) with intranuclear inclusion bodies. Lendrum's stain for inclusion bodies, 600X.

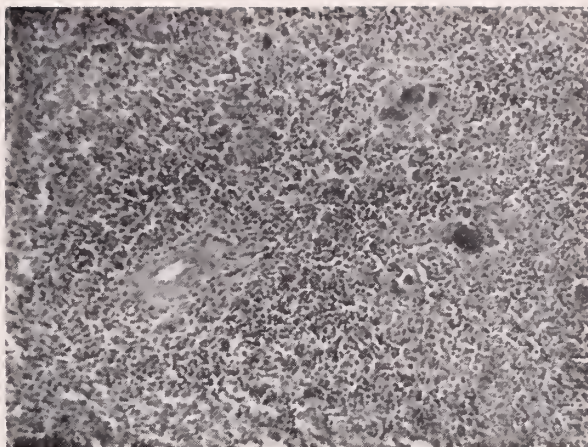


Figure 3. **Spleen.** Multinucleated mesenchymal giant cells in the periphery of malpighian corpuscles. H & E staining, 120X.

giant cells. The red pulp was moderately congested. There was moderate hyperplasia of the sinus endothelial lining cells (Fig. 3).

There was moderate hyperplasia of the lymphoid elements and reticulum cells. Many giant cells identical to those seen in the malpighian corpuscles of the spleen were distributed diffusely (Fig. 4).

Innumerable small fat vacuoles were diffusely distributed in the liver cells. The portal triads were well preserved. No giant cells or inclusion bodies were noted.

#### Pathologic Diagnosis

1. Giant cell pneumonia, due to rubeola.
2. Lymphoid hyperplasia, generalized.

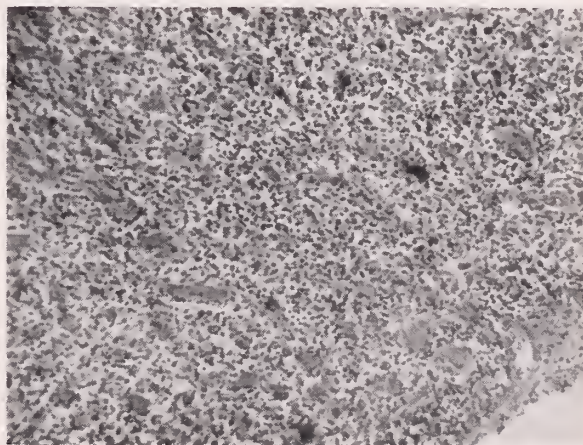


Figure 4. **Lymph node (mesenteric).** Multinuclear mesenchymal giant cells in the cortex. H & E staining, 120X.



with formation of Warthin-Finkeldey's giant cells.

3. Fatty metamorphosis of liver.
4. Congestion of viscera.
5. Gingival ulceration.
6. Cardiac enlargement: left ventricular hypertrophy.

### Discussion

A number of different interpretations have been suggested as to the nature of "Giant Cell Pneumonia (Hecht)." According to the older concept,<sup>2</sup> "the giant cell was not specific for a particular infection but characteristic for chronic inflammation due to different etiologies which caused peribronchial inflammatory infiltration." The theory that giant cell pneumonia was due to the virus responsible for canine distemper had attracted pathologists for many years.<sup>3</sup> Recent reports of giant cell pneumonia have attributed the cause to the distemper virus.<sup>4,5</sup> The old opinion that "any toxic stimulus plays a role to produce giant cells" appears to be completely abandoned and even most conservative pathologists hold the opinion that "interstitial giant cell pneumonia and virus pneumonia of infants represent a single disease entity."<sup>6</sup>

Recent publications by Sherman<sup>7</sup> and Feyrter<sup>8</sup> present an attractive summary on the pathologic findings of measles. According to Sherman, presence of giant cells of reticuloendothelial origin and those of epithelial origin with or without intranuclear inclusion bodies are pathognomonic for rubeola. Feyrter described mesenchymal (reticuloendothelial) giant cells in the lymphoid tissue of the throat, intestinal and respiratory tract; lymph nodes, spleen, thymus, periportal tissue of the liver, and meninges before the outbreak of the rash and epithelial giant cells of various sites after the outbreak of the rash.

It is of interest to note several papers describing the presence of typical Warthin-Finkeldey's giant cells (mesenchymal or reticuloendothelial giant cells) in appendices resected under the false assumption of acute appendicitis during the prodromal stage of rubeola.<sup>9</sup>

Experimental infection of rubeola in monkeys by Taniguchi<sup>10</sup> succeeded in producing both typical Warthin-Finkeldey's and epithelial giant cells.

Our case demonstrated an exposure to patients with rubeola 13 days prior to death. The incubation period of rubeola is approximately 14 days if the appearance of the rash is selected as the time of onset.<sup>11</sup> Our patient probably died in the prodromal stage. Autopsy disclosed typical giant cell pneumonia and generalized lymphoid hyperplasia with formation of Warthin-Finkeldey's giant cells. We consider our case as showing typical changes of rubeola.

The presence of squamous metaplasia of the bronchial mucosa was interpreted to result from chronic bronchitis as is evident by chronic history of cough.

### Summary

The present paper deals with a 12 month old Negro male who expired as a result of a respiratory infection.

Anatomically, giant cell pneumonia and generalized lymphoid hyperplasia with the formation of Warthin-Finkeldey's giant cells were found.

We consider the changes to be due to rubeola. The conclusion is supported by the clinical history as well as the histologic findings.

### REFERENCES

1. Hecht, V.: Die Risenzellenpneumonie im Kindersalter. Beitr. z. Anat. u. allg. Path., 48: 263-310, 1910.
2. Hencke & Lubarsch: Hb. d. sp. path. Anat. und Hist., Atmungswege und Lungen, 1sten Teil. 290-293, 1928.
3. Pinkerton, H., Smiley, W. L., Anderson, W. A. D.: Giant Cell Pneumonia with Inclusions. Am. J. Path. 21: No. 1, 1-24, 1945.
4. Broz, O. L.: Zur Frage der Aetiologie der Riesenzellenpneumonie bei Kindern. Zbl. allg. Path. Anat. 93: No. 8-9, 370-374, 1955.
5. Weller, R. W.: Giant Cell Pneumonia with Inclusions. Ped. 10: No. 6, 681-686, 1952.
6. Wolman, W., et al.: Studies on Interstitial Giant Cell Pneumonia. Am. J. Dis. Child., 83: No. 5, 575-588, 1952.
7. Sherman, F. E., et al.: In Vivo and in Vitro Cellular Changes Specific for Measles. A. M. A. Arch. Path. 65: No. 6, 587-599, 1958.
8. Feyrter, F.: Ueber die Histopathologie der Masern des Menschen. Wien. Zschr. fuer Inn. Med. u ihre Grenzgebiete, Vienna. 28: suppl., 1-39, 1947.
9. Simon, M. A., et al.: Appendiceal lesions in the prodromal stage of measles. Am. J. Cl. Path., 18: No. 10, 796-804, 1948.
10. Taniguchi: Pathology in monkeys experimentally infected with measles virus. Med. J. Osaka Univ., 5: No. 2-3, 367-396, 1954.
11. Nelson, E. W.: Textbook of Pediatrics, 6th edition, W. B. Saunders Co., 1957, p. 467.

800 N.E. 13th, Oklahoma City, Oklahoma



# Chronic Emphysema and Corpulmonale

## With Perforation of Duodenal Ulcer

**RENE MENGUY, M.D., Ph.D., Editor**

**MRS MARY COMPTON, Assistant Editor**

**JULIUS H. COMROE, JR., M.D., Guest\***

*Proceedings of a weekly conference sponsored by the Medical and Surgical Services, VA Hospital and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine.*

**Doctor Ginn:** The patient, a 62-year-old, white, retired lumberman, was admitted to the hospital on December 27, 1958. His chief complaint was severe abdominal pain that started approximately 18 hours prior to admission.

He gave a history of progressive dyspnea since 1949. In 1956 he had developed ankle edema and three weeks later was admitted to this hospital for the first time. In 1956 he complained mainly of dyspnea on exertion. He was digitalized, given potassium iodide and bronchodilators. His electrocardiogram was normal. In November, 1956 he was readmitted for the second time following an episode of severe dyspnea. He was

treated with antibiotics and bronchodilators. A pneumoperitoneum was created without benefit. In January of 1957 the patient was admitted to this hospital for the third time. He was extremely dyspneic, cyanotic and also was intoxicated. Shortly thereafter, he developed delirium tremens and was treated for this with magnesium sulfate. From 1957 until 1958 his dyspnea gradually increased in severity. He was maintained on digitalis and was given frequent injections of mercurhydrin by his local doctor.

An exploratory laparotomy was performed at the time of his present admission and a perforated duodenal ulcer was found. He responded fairly well postoperatively but during the next two weeks developed marked pedal edema and his dyspnea became more pronounced. On October 1, 1958, he went home for several days but on the 22nd he returned to the hospital semi-conscious, cyanotic and with marked edema of the lower half of the body.

\*Professor of Physiology and Director of the Cardiovascular Institute, University of California School of Medicine, San Francisco, California.



Figure 1

His temperature was 102 F. and his pulse was 108 per minute. His blood pressure was 124 mm. Hg systolic and 60 diastolic. He appeared undernourished, extremely cyanotic and markedly edematous. The neck veins were distended. The chest was hyperresonant and there was a marked increase in the anterior-posterior diameter. The breath sounds were very distant. Diaphragmatic excursions were decreased and there were rales and expiratory wheezes over both lung fields. Due to his severe respiratory distress and his inability to handle his bronchial secretions, a tracheostomy was performed. Following this he responded well to digitalization and the administration of diuretics. His bronchial secretions gradually decreased.

*Doctor Ridings:* The first film is dated April 26, 1956 (Figure 1). Marked pulmonary emphysema is evident particularly in the upper lobes on both sides. Some bullae are present. The pulmonary vessels are quite large. There is some prominence of the right ventricular outflow tract indicating right ventricular hypertrophy. On the next examination performed on January 19, 1957, free air is noted under the diaphragm.

There are mottled densities in both lung bases which are fairly suggestive of inflammatory disease.

*Doctor Hammarsten:* One of the interesting facets of the problem presented by this patient is the fact that whereas he has had arterial oxygen unsaturation for at least two years, his hemoglobin is only 15.5 and his hematocrit 52% (Table 2). In other words, he has not developed polycythemia as one would expect with his degree of hypoxia (Table 1). We have been interested in finding out why people with pulmonary emphysema do not respond as anticipated to hypoxia. In normal individuals living at various altitudes one can predict the rise in hemoglobin according to the degrees of hypoxia.<sup>1</sup> We found that in the patients with emphysema there was no predictable polycythemic response in relation to the degree of hypoxia.<sup>2</sup> Characteristically there was an increase in red cell size. Furthermore, the absence of polycythemia could not be attributed to an increased plasma volume in these patients since our study showed that their plasma volumes were normal. The patients with pulmonary emphysema were not destroying their red blood cells at a more rapid rate than normal patients. Ferrokinetic studies yielded normal results. It has been postulated that patients with pulmonary emphysema do not regularly have polycythemia because they are unable to produce the erythropoietic factor. We studied this facet of the problem in a group of five patients who all had severe hypoxia with normal hemoglobin concentrations. Using a standard technique the plasma from these patients was prepared to concentrate the erythropoietic factor. The preparation was injected into rats in which the hemoglobin, hematocrit and red cell response was measured. All of these rats developed an increase in hemoglobin in contrast to the rats given saline or normal plasma who did not. Thus it would appear that patients with pulmonary emphysema are able to produce a normal or increased amount of this so-called erythropoietic factor.<sup>3</sup>

*Doctor Honska:* I would like to make a few comments about the relationship of emphysema and peptic ulcer as observed in

TABLE 1

Pulmonary Function Tests	4-30-56	11-15-56	1-6-59	Predicted
Arterial O <sub>2</sub> Saturation-Room Air	92%	86%	82%	92-102%
-100% O <sub>2</sub>	96.5%	92%	96%	96-105%
Tidal Volume	.62L	.51L	.68L	.5L
Frequency	19/min	26/min	19/min	14/min
Minute Volume	11.8L	13.2L	12.9L	6.0L
Inspiratory Capacity	1.55L	1.78L	1.3L	3.6L
Expiratory Reserve Volume	1.3L	1.0L	.42L	1.2L
Vital Capacity	2.71L	2.90L	1.72L	3.89L
1 Sec	35%	29%	35%	
2 Sec	53%	46%	52%	
3 Sec	63%	57%	67%	
Mean Breathing Capacity	30L/min	32.2L/min	22.2L/min	121.9L

this hospital. Doctor Welsh and I reviewed 104 cases of pulmonary emphysema. Of these we found that 45 patients or 40% of these, had a history suggesting peptic ulcer. Of these 45 patients, 18 eventually were proven to have ulcer craters. In 13 cases the ulcer was duodenal, and gastric in five others. Seven of the patients had histories of severe bleeding. One of them had perforated an ulcer in the past. One gathers from the literature that there is a 39% in-

cidence of signs or symptoms of peptic ulcer in patients with pulmonary emphysema, and of these, 19% are eventually proven to have ulcers.<sup>4</sup> The reason for this relationship has not been elucidated but it is possible that an increased CO<sub>2</sub> tension may increase gastric acidity.

*Doctor Comroe:* I will attempt to discuss the diagram (Figure 2) which obviously is trying to explain the relationship between peptic ulcer and emphysema. I will start

TABLE 2

LABORATORY DATA							
Hosp. Day	1	3	7	9	10	12	13
Date	1-22	1-24	1-28	1-30	1-31	2-2	2-3
Na MEq./L.	143	131	128	131	132	137	135
K MEq./L.	4.6	4.1	3.0	3.4	4.0	4.3	3.9
CO <sub>2</sub> MEq./L.	36	34	33	34	25	24	25
Cl MEq./L.	94	88	90	88	76	96	94
Hgb	17.6		15.6		15.5		
Hematocrit	57%		53%		52%		
WBC	14,650		11,400		4,500		



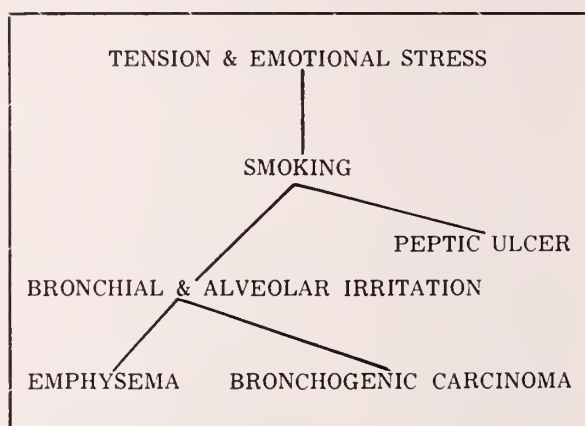


Figure 2

off by saying I do not know the cause of emphysema. I think that anyone interested in the care of these patients has a different concept of the etiology of the condition. I have seen patients who had a history of excellent health until the onset of what was diagnosed as virus pneumonia. Virus pneumonia is defined as something acutely wrong with the lung and which does not respond to antibiotics. These individuals that I have seen were found to be short of breath at the termination of their acute illness. They had clinical evidence of pulmonary insufficiency and function tests that showed considerable lung destruction. If these individuals were really normal before the so-called virus pneumonia and following this acute infection had severe lung destruction, we must revise our ideas about what pneumonia does to the lung.

Another valid observation is that as people get older there are changes that take place in all the tissues of the body and the lung in particular. There is no doubt that the vital capacity decreases with age in healthy individuals and it starts to decrease in the late 30's and by about the mid 40's or mid 50's a very appreciable decrease in vital capacity has occurred. The total capacity of the lung does not change. As a result of changes brought about by age, the lung loses its elasticity, it enlarges and becomes slightly emphysematous. If overinflation of the lung can occur with advancing age, one wonders about what happens to tissues in the remainder of the body. If elastic tissues in the lung change, it is entirely possible that elastic tissues in other areas

of the body such as the stomach also undergo change.

In the diagram, smoking is listed as a factor being involved both in peptic ulcer and in emphysema. I think we are now starting to have some idea of what smoking does to the lung. I don't think that smoking is a cause of lung cancer, but there are good statistics to show that heavy smokers are more susceptible to the development of lung carcinoma than nonsmokers. I do think that many other types of irritants that can be inhaled, such as smoke and smog, can accelerate the growth of new tissues in the lung if there is a focus of new growth to begin with. On the other hand, I believe that there is very little evidence to show that smoking has any etiologic effect on other pulmonary disease although it is possible that smoking may be an aggravating factor in chronic disease by its irritating effect on the bronchi. I repeat that I don't think that it is a causative effect. The relationship of smoking to peptic ulcer is also obscure. Unfortunately, our knowledge of the effects of nicotine are rather uncertain. We have studied this problem in the laboratory and we found that nicotine in extremely small doses has a stimulatory effect on the chemoreceptors in the carotid body, resulting in vasoconstriction and a slight rise in blood pressure. Larger doses resulted in stimulation of the sympathetic ganglia and then slightly higher doses resulted in parasympathetic stimulation. Whether this could result in increase of gastric secretion or not, is not known. As far as the relationship between emphysema and peptic ulcer is concerned, the  $\text{CO}_2$  excess has been invoked. It has been suggested that the respiratory acidosis produced by an excess of  $\text{CO}_2$  could lead to increased parasympathetic activity. This is so, because according to the data of Doctor Gesell, the activity of cholinesterase is depressed in an acid medium. This leads to less destruction of acetylcholine and thereby a state of increased parasympathetic activity. However, these data were in media in which the acidity was very high, around 4, 5 or 6. Now patients with emphysema rarely have a pH that goes below 7.2 or 7.3. This pH is acid but not extremely acid and I don't know whether or not Doctor Gesell's

findings would apply with such relatively small changes in pH. Also, we know that patients with CO<sub>2</sub> excess and respiratory acidosis secrete a maximally acid urine in their tubules. We don't know, on the other hand, what happens to the gastric secretion at the same time. If the kidney responds by secreting more acid, it is conceivable that the stomach may respond in the same manner. Therefore, it would be interesting to study the acidity of the gastric juices in patients with emphysema.

I have also been asked to comment on the matter of polycythemia. The data presented here agree with ours in that we've always had the impression that our patients with pulmonary emphysema did not have an increased hematocrit. On the other hand, Cournand in New York found that his patients with chronic lung disease had increased hematocrit and he has recommended phlebotomy in order to reduce the blood viscosity. However, the data here agree with ours. I always liked the explanation for this phenomenon that patients with chronic emphysema had a chronic low grade pulmonary infection and that this chronic infection was depressing the bone marrow, thus explaining the lack of polycythemic response. The data presented do not support that concept. I think also one has to consider the age factor. Patients with chronic pulmonary emphysema are usually in the older age group and it is possible that the total bone marrow response is not as good in the older patient as it is in the younger patient.

I would like to change the subject now and raise the question of tracheostomy. May I ask why a tracheostomy was performed on this patient?

A. He was having extreme respiratory difficulty and could not raise his secretions. Also it was felt that tracheostomy would decrease his "dead air space" and would thereby facilitate air exchange.

*Doctor Comroe:* This is an important point to remember in treating these patients. The way a normal individual gets rid of his bronchial secretions is by taking a breath

of air in, the air goes past the mucus to the alveoli, then the air is blown out at high velocity. Whether or not the secretions are going to be raised or not depends upon the velocity of this expiration. Individuals with chronic emphysema cannot blow with a great velocity. One test, of course, that one can use for a patient with emphysema, is to see whether or not he can blow out a lighted candle. Therefore, a tracheostomy has to be done occasionally in emphysematous patients because they are not capable of handling their bronchial secretions. A tracheostomy also can help by decreasing the dead space.

Q. We have recently had good results in two patients using the respirator during the acute phase of emphysema. Would you comment on the use of the respirator in the treatment of emphysema?

*Doctor Comroe:* When an emphysematous patient dies, there are two causes responsible for his death. Either he has right heart failure because the capillary bed is so encroached upon that there is a tremendous resistance to blood flow through the lung, or he dies because of ventilatory insufficiency; that is to say, he cannot get enough air in and out of his lungs. The latter cause of death is really paradoxical. When the heart works against resistance, it hypertrophies long before it fails. On the other hand, although the respiratory muscles work for a long time against increased resistance, they do not hypertrophy but become, on the contrary, atrophied, and then suddenly fail. When these respiratory muscles fail, automatic machines become useful. The use of the automatic respirator in the patient with emphysema is not as simple as it is, for instance, in a patient with poliomyelitis or brain injury. These patients are not breathing at all, so all one has to do is put them into the respirator and then adjust the respirator to the desired rate. On the other hand, in the patient with emphysema, it is quite possible that the patient may be breathing five liters a minute on his own before being placed in the respirator and then be breathing three liters a minute in the respirator even though the latter is working at full capacity. This is due to the



fact that the patient may not be in phase with the respirator and one can in this fashion get into severe difficulties. One has to stand by and see to it that the patient's breathing is synchronized with the respirator. Sometimes the best results are obtained by having an anesthesiologist ventilating the patient manually and it is possible to save a patient by breathing for him for 12 or 24 hours until antibiotics or some other therapy can become effective.

*Q.* Doctor Comroe, would you comment briefly on the use of adrenal steroids in the treatment of patients with severe pulmonary emphysema?

*Doctor Comroe:* The pathologic anatomy in the patient with pulmonary emphysema essentially can be defined as a more or less complete loss of structural tissue in the bronchioles. In our cardiovascular research laboratory, dissections of emphysematous lungs have been carried out and in the emphysematous patient, the bronchi, instead of being semi-rigid tubes as they are in normal lungs, have the consistency of tissue paper. It is easily understood how these bronchi are dilated as air goes in but collapse upon expiration. I can't see how steroids could help in any way in the patient with such structural abnormalities of the bronchial tree. On the other hand, they may help when there is an infectious or allergic component.

*Q.* Would you comment on the use of the pneumoperitoneum in the treatment of emphysema?

*Doctor Comroe:* I have no personal experience with therapeutic pneumoperitoneum. The rationale for this is, of course, that in the emphysematous patient the diaphragm is flattened out and therefore can no longer move downward on inspiration.

Therefore, if one pushes the diaphragm up by placing air in the abdomen, the diaphragm can move down again on inspiration. My only objection to this approach is that by placing air in the peritoneal cavity, the diaphragm has to work against more pressure than it did before the air was in. On the other hand, if the diaphragm is utterly useless by its extremely low position and paradoxical breathing is present, pneumoperitoneum can be useful by pushing the diaphragm up into a more normal position. Before I would do a pneumoperitoneum, I would place an abdominal binder on the patient so as to push the diaphragm up. If this gave the patient some improvement, I would then consider pneumoperitoneum. There are now mechanical devices being made that cycle with the patient's respiration and place pressure on the abdomen only during expiration. These are not yet on the market, as far as I know. I shall terminate by saying that the problem in emphysema is to do whatever one can by whatever means one has to keep the patient from losing what lung tissue he has left.

#### REFERENCES

1. Hurtado, A., Merino, C., and Delgado, E.: Influence of Anoxemia on the Hemopoietic System, *Arch. Int. Med.* 75: 284, 1945.
2. Hammarsten, J. F., Whitcomb, W. H., Johnson, P. C. and Lowell, J. R.: The Hematologic Adaptation of Patients with Hypoxia Due to Pulmonary Emphysema, *Am. Rev. Tuberculosis and Pulmonary Diseases* 78: 391, 1958.
3. Walter H. Whitcomb, Robert M. Bird, Philip C. Johnson, James F. Hammarsten and Margaret Z. Moore: Erythropoietic Factor of Hypoxic Patients with Emphysema Without Secondary Polycythemia, *AMA Archives of Internal Medicine*, accepted for publication.
4. a. Latts, E. M., Cummins, J. F. and Zieve, L.: Peptic Ulcer in Pulmonary Emphysema, *AMA Arch. Int. Med.* 97: 576, 1956.  
b. Lowell, F. C., Franklin, W., Michelson, A. L., and Schilles, I. W.: A Note on the Association of Emphysema, Peptic Ulcer, and Smoking, *New England J. Med.* 254: 123, 1956.  
c. Apperly, Frank: Peptic Ulceration in Pulmonary Emphysema *Am. J. Digestive Diseases* 1: 270, 1956.

924 N.E. 13th, Oklahoma City, Oklahoma



## The Achromatic Spindle and Telophase Nuclei as Indicators of Protoplasmic Poisoning

E. W. E. MACFARLANE\* and A. A. KATZBERG\*\*

Growth, 22: 181-188, 1958

After a short exposure to phenyl mercuric hydroxide the early telophase nuclei showed a decreased length of the achromatic spindle. Similar effects were produced by other organic mercurials as well as NCH, NaF<sub>3</sub>, Mg<sub>3</sub>SO<sub>4</sub>, and phenyl urethane. These criteria might be useful diagnostic aids for the detection of early protoplasmic poisoning in various cytological investigations.

\*Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor.

\*\*Assistant Professor of Anatomy.

## Alterations of Protein, Lipid, and Polysaccharide Composition of Canine Aortas Induced by Allylamine, Gonadal Steroids and Castration

L. N. NORCIA,\* I. E. GONZALEZ,\*\* M. R. SHET-LAR,\*\*\* JO ANN PETER,\*\*\*\* and R. H. FUR-MAN\*\*\*\*\*

The American Journal of Physiology, 195: 759-768, December, 1958

The aortic concentration of cholesterol, phospholipid, alkali-soluble nitrogen and polysaccharides decreased from arch to trifurcation in normal, allylamine-treated, and steroid-treated castrate dogs; total and alkali-insoluble nitrogen increased. These concentration gradients did not correlate with tissue cell counts or potassium levels. Aortic cholesterol increased significantly with age in males but not females. Acetal phosphatide was clearly demonstrated histochemically and its concentration followed the lipid phosphorus gradient. It was noted in juxtaposition to elastic fibers. Other lipids were mostly intracellular. Higher concentrations of cholesterol and alkali-soluble nitrogen existed in the aortas of allylamine-treated dogs and steroid-treated castrate dogs. In addition, slight increases in hexosamine and slight decreases in glycogen were shown in the aortas of allylamine-treated animals. An accumulation of periodic-acid-Schiff positive material other than glycogen was noted at the site of allylamine-induced injury. Allylamine administration increased serum glycoprotein and seromu-

\*Assistant Professor of Research Biochemistry.

\*\*Medical Student and Research Fellow at the time of this study.

\*\*\*Associate Professor of Biochemistry.

\*\*\*\*Research Assistant.

\*\*\*\*\*Associate Professor of Research Medicine.

## Response of the Blood Glucose to Glucocorticoids in Man: Determination Of the Hyperglycemic Potencies of Glucocorticoids

KELLY M. WEST.\*

Diabetes, 8: 22-28, 1959

Although the fasting blood glucose in man is not as responsive to the administration of glucocorticoids as is the blood glucose in the course of the intravenous glucose tolerance test, small elevations in fasting blood glucose were consistently produced under certain conditions by a single dose of glucocorticoid. The magnitude of the hyperglycemia was variable from subject to subject but in each subject the magnitude of response produced by a single dose correlated well with the potency of the dose administered at certain levels of dosage.

Evidence is presented suggesting that the peak of hyperglycemic action of hydrocortisone occurs about six to eight hours after a dose is administered orally at a time when the peak of eosinopenic action has passed.

A simple method of determining the hyperglycemic potency of a glucocorticoid is described.

\*Staff physician, Veterans Administration Hospital, and Instructor in Medicine, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.

## The Area of the Dermo-Epidermal Junction in Human Skin

ALLAN A. KATZBERG\*

Anatomical Record, 131: 717-726, August, 1958.

The area of the dermo-epidermal junction of human skin obtained from abdominal regions was found to decrease with age. The arithmetic mean values computed for the age groups 0-20, 21-40, 41-60, 61-80, and 81-100 years were 2.75, 2.64, 2.15, 1.90, and 1.16 mm<sup>2</sup> per square millimeter of external body surface area.

This decrease of area is due to the gradual obliteration of the rete pattern of the undersurface of the epidermis, which in turn is believed to be brought about by the collapse and resorption of the connective tissue of the dermal papillae as the involution of vascular structures precipitates metabolic deficiencies in the dermis.

Sex does not appear to influence age changes of the junction area. However, the limited reduction during the first four decades does indicate a hormonal effect on the maintenance of the surface area.

\*Assistant Professor of Anatomy.

### **Three Appointments for Medical Center**



**PRICE**



**FISHER**



**COX**

Recent appointments to the University of Oklahoma School of Medicine include Richard Brooke Price, M.D., clinical assistant in radiology; Pearl Davidowitz Fisher, Ph.D., research associate in preventive medicine and public health; and James A. Cox, M.D., Clinical Assistant in Psychiatry.

A 1951 graduate of the OU School of Medicine, Doctor Price interned at Herrmann Hospital, Houston, Texas. He took residency training at the University of Iowa Hospital from 1952 to 1953 and from 1955 to 1957, serving one year as an instructor on the Department of Radiology faculty at Iowa. He has been certified by the American Board of Radiology.

Doctor Fisher, a graduate of Brooklyn College, studied bacteriology and mathematics at Brooklyn College Graduate School and subsequently received her M.S. in biostatistics at Columbia University School of

Public Health in 1951.

She was a graduate laboratory assistant in the Department of Preventive Medicine and Public health from 1954 to 1958, at which time she was awarded her Ph.D.

Her research activity has included studies of oral immunization against typhoid, immunological procedures in brucellosis, life cycle studies on the house pin worm.

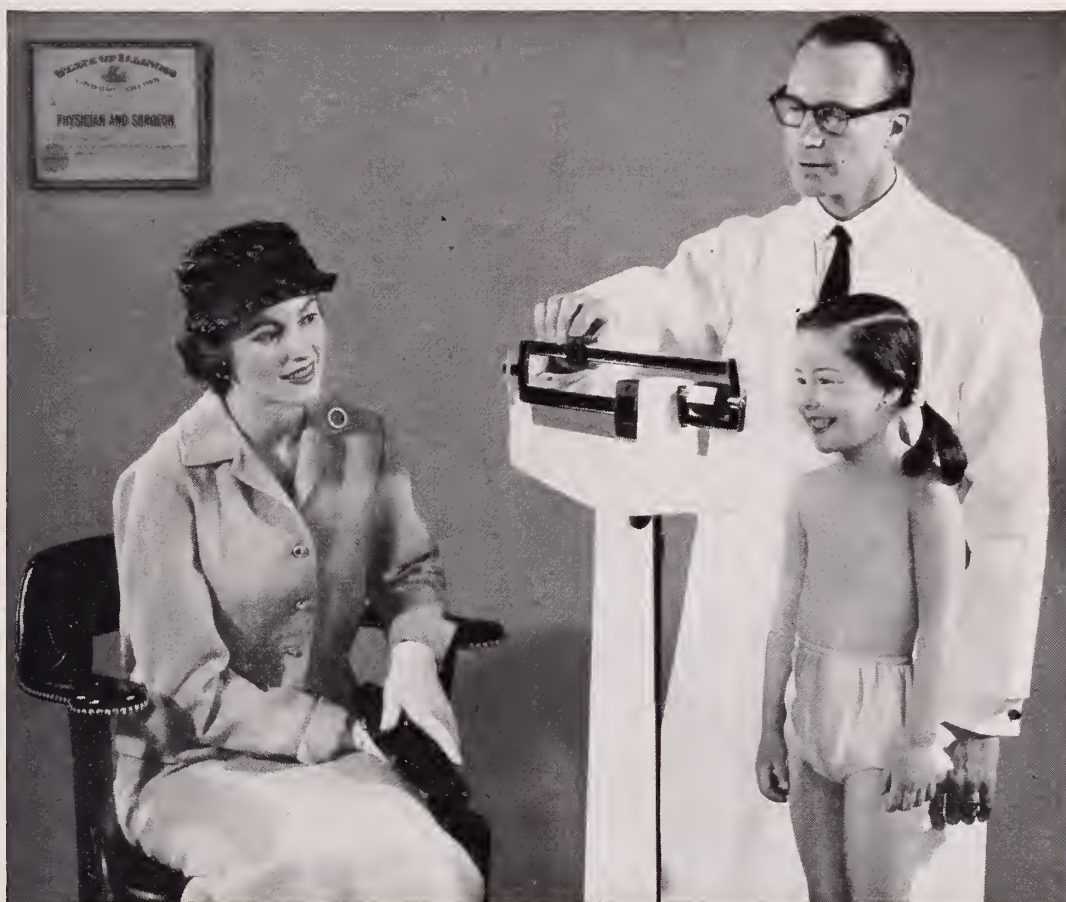
Doctor Cox was the first psychiatrist to complete residency training at the University of Oklahoma hospitals after the psychiatric residency program was established at the Center.

A 1944 graduate of Meharry Medical College, Nashville, he interned at Kansas City General Hospital and had additional training in the U.S. Army Medical Field Service School, Fort Sam Houston, Texas, with subsequent service in Korea and Japan.

---

AREA CARDIOVASCULAR GRANT to the Medical Center has been renewed for the current year in the amount of \$26,620. The federal funds (Department of Health, Education and Welfare) are administered by a center-wide committee headed by Doctor Robert Furman, OMRF heart section chief, and are used primarily to help promising young investigators . . . Doctor Furman says application forms are available in his office and may be submitted at any time for committee consideration.





## Underweight Children Gain and Retain Weight with Nilevar<sup>®</sup>

One of the most convincing evidences of the anabolic activity of Nilevar, brand of norethandrolone, has been its ability to improve appetite and increase weight in poorly nourished, underweight children.

A highly important feature of the weight gain thus produced is that it is not ordinarily manifested by deposition of fat but as muscle tissue resulting from the protein anabolism induced by Nilevar.

**Anorexia and "Weight Lag" Study**—Brown, Libo and Nussbaum have reported\* consistent and definite increases in rate of weight gain in eighty-six patients, ranging in age from 7 weeks to 15½ years. This beneficial action of Nilevar was observed in the patients with organic and traumatic disorders as well as those whose only complaints were poor appetite and/or persistent failure to gain weight.

In this study, the weight gained was not lost

after discontinuance of Nilevar therapy although many patients did not continue the sharp gains effected by the drug.

The authors are of the opinion that Nilevar is a highly useful anabolic agent for influencing weight gain in underweight children.

When Nilevar is administered to children a dose of 0.25 mg. per pound of body weight is recommended and continuous dosage for more than three months is not recommended.

Nilevar is supplied as tablets of 10 mg., drops of 0.25 mg. per drop and ampuls of 25 mg. in 1 cc. of sesame oil. Further dosage information in Searle Reference Manual No. 4.

G. D. Searle & Co., Chicago 80, Illinois.  
Research in the Service of Medicine.

\*Brown, S. S.; Libo, H. W., and Nussbaum, A. H.: Norethandrolone in the Successful Management of Anorexia and "Weight Lag" in Children, Scientific Exhibit presented at the Annual Meeting of the American Academy of Pediatrics, Chicago, Oct. 20-23, 1958.



# PRESIDENT'S LETTER



As individual doctors, we should be very careful in our use of the written or spoken word, especially where the expression of our thinking could be interpreted as being the official policy of the Association. Official expression must represent the majority opinion of the membership of the Association, as stated through the House of Delegates and by the Council. This should apply to all officers, as well as members of the Association. What the individual feels, thinks and expresses is his own business, but it should be labeled as personal opinion so that it will not be construed as official statements of policy.

The reason for mentioning this is that we have troublesome times ahead of us. The problems to be met and solved are problems involving a number of factors, and will result in a number of possible solutions, and in the expression of a great number of opinions.

There is no rhyme or reason for presenting, in this manner, to our detractors, ammunition for their sniping.

A handwritten signature in cursive script that reads "Alfred T. Baker M.D.".

ALFRED T. BAKER, M.D.  
President

# Special Article

## Recent Advances and Objectives of

# THE NURSING HOME

PAUL A. SNELSON\*

Consultant, Health Care  
of the Aged Committee

ALTHOUGH it is relatively new in the American way of life, the Nursing Home is rapidly becoming recognized as a basic component in the realm of patient care facilities. It is an outgrowth of changes in the complex economic, medical and social structure of our society.

Because it is a new type of facility that has developed so swiftly by popular demand,

*This article represents a factual report concerning nursing homes and their problems. The Nursing Home Sub-Committee of the Health Care of the Aged Committee is now evaluating the nursing home needs of the state in the light of making recommendations for improvement.*

comparatively little effort has been directed toward an understanding and the development of philosophies as to its realistic needs, the organizational structure, relationship to aging, its relationship to medical care, and to other types of facilities providing care for the aged, the chronic and convalescent. The impact of the problem was clearly set forth in a recent report issued by the Division of Special Health Services, Department of Health, Education and Welfare, as follows:

\*Head of the Hospital Division, Oklahoma State Health Department.

1. "It is estimated that there are about 25,000 Nursing Homes in the United States. They contain 450,000 beds; 180,000 of these beds are in what are called 'Skilled Nursing Homes'; 80,000 more beds are in homes that provide some degree of skilled nursing care.

2. "The control of inspection, the achievement of higher standards of living and the provision of better medical and hospital care, contribute to greater longevity and the growth of the population of older citizens. This has been demonstrated by the fact that since 1900, the number of persons reaching the age of 65, has quadrupled.

3. "The average age of persons living in Nursing Homes is 80 years. Two-thirds of them are over 75; two-thirds of them are women. Less than one-half of them can walk alone; more than half have periods in which they are disoriented; about one-half are incontinent; and two-thirds have some type of circulatory disorder.

4. "The National survey shows that 91% of the Nursing Homes are privately owned; only 3% are publicly owned. Private Nursing Homes generally are smaller, averaging about 18 beds in size, while the publicly owned homes average

about 69 beds. However, 71% of all nursing home beds are found in privately owned facilities; 15% in publicly owned facilities; and the remaining 14%, in voluntary, sectarian and fraternal type homes.

5. "Every State and Territory conducts an official Nursing Home Licensing Program, with the exception of Puerto Rico. As distinguished from Nursing Homes, all have a Licensing Program for facilities offering custodial care for the aged, except the State of Nevada and Puerto Rico. In 43 States, the State Health Departments have the responsibility for the maintenance of standards for Nursing Homes and related facilities. In six States and Territories, this responsibility has been delegated to the State Welfare Departments."

Since Oklahoma is, in many respects, an average State, it may be assumed that the program is reasonably proportionate to that of the National picture. However, it does differ in the ratio number of homes and beds. As of today, there are 378 licensed Nursing Homes having 6,378 beds, and 142 rest homes, or homes for the aged, having 1,102 beds. Also, the average number of beds per privately owned Home, is 13 beds, as compared with 18 beds Nationally. This, in itself, is not too significant, but does indicate some variance among the States.

There are a few conditions which are common to all States:

1. The Nursing Home as a health facility is a relatively new industry.

2. Demand and utilization has increased with unpredicted rapid pace within the past 15 years.

3. The basic problems of conducting a licensing program are similar and confront all licensing agencies. While considerable progress in raising the standards of care has been made within the past ten years, there is still a challenge to be met. In this regard, it is our belief that licensure status, on the whole, is no better nor any worse in Oklahoma than in the majority of other States.

## Role of the Nursing Home

What is the role of the Nursing Home in the care of the chronically ill, the infirm, or convalescent?

There is a growing trend in the concept of total care embracing an integration of services and facilities. This plan brings together in a cooperative working relationship, skilled care in the home of the individual, visiting nurse services, the rest home, nursing home, chronic disease hospital, diagnostic and treatment centers, out-patient departments, clinics, general, mental and tuberculosis hospitals, rehabilitation centers, and public health facilities.

With another reference to published information, it is believed that the stated policies, in part, of the Commission on Chronic Illness, in a report dated November, 1954, relative to care of the long-term patient, charts the course for future action in this regard.

This Commission, whose work is now completed, was a temporary National agency founded jointly by the American Hospital Association, the American Medical Association, and the American Public Welfare Association, and the American Public Health Association.

1. "Care of the Chronically ill is inseparable from general medical care—.

2. "Care and prevention are inseparable; the basic approach to chronic disease must be preventive, and prevention is inherent in adequate care of long-term patients.

3. "Adequate care — requires arrangements which promote frequent evaluation of patient needs and an easy flow back and forth among home, hospital and related institutions.

4. "Coordination and integration of services and facilities are so valuable in promoting good care for the chronically ill that all who are concerned with the long-term patient have an obligation to support and further arrangements to this end."

This lengthy report goes on to outline recommendations for the care of patients at



home, the Nursing Home, institutions, and general, chronic disease and mental hospitals.

In summing up the section on Nursing Homes, the Commission recognized that Nursing Homes and related institutions are essential for some phases of long-term illness, but that many of these facilities must yet equip themselves to provide safe and adequate care and become properly aligned with other community resources serving the chronically ill. In addition, the Commission endorsed and commended the Nursing Home Standards recommended by the National Social Welfare Assembly's Committee on Aging, in 1953, and the suggested procedures for establishing and maintaining them through an official licensing agency.

The current minimum licensure standards for rest homes, Nursing homes and related institutions adopted by the Oklahoma State Board of Health, are in close agreement with those suggested standards. However, since no progressive program can remain static and still achieve desirable objectives, these state standards need re-evaluation to determine their practicality and effectiveness.

The licensure program is authorized by the 1953 Licensing Act for Rest Homes, Nursing Homes and Related Institutions. The State Commissioner of Health was designated as the responsible officer for administering the Act. As is customary with most public health legislation, the Commissioner of Health and the State Board of Health have the legal authority to promulgate rules and regulations for the conduct of the program.

It should be of especial interest at this point to mention that there is a very good State Nursing Home Association and National Nursing Home Association. Both are quite active and it should be reassuring to know that both groups have adopted a policy which promotes high standards of care and idealistic objectives.

In the development of standards it must be kept in mind that Nursing Homes are peculiar types of health facilities, primarily serving a dual role of providing some degree of skilled nursing care and to provide

a homelike atmosphere for most of the patients or residents. It is difficult, therefore, to equate essential standards relating to patient care for those in need of nursing care and adequate standards that would apply to the safety, comfort and convenience of those not requiring such care. Nevertheless, a sound set of standards must be based on three basic spheres, fire and safety, environmental sanitation, and direct patient or personal care.

The licensing agency has three major activities to perform: (1) educational, (2) enforcement, and (3) coordinating the various aspects associated with care of the aged.

Standards themselves may be broken down into the two major categories of desirable goals and minimum mandatory requirements.

Setting up high ideals should be encouraged through educational processes, while only minimum licensure requirements should be subjected to enforcement methods.

Obviously it would be impractical, if not impossible, to devise a comprehensive set of standards to cover all known and unforeseen deficiencies that would apply equally to all facilities whose size, type and character vary so greatly. We cannot expect that everybody will wear a size seven hat, or size eight shoes. It is the opinion of the State Agency, therefore, that the basic mandatory requirements should be clear, concise, and as brief as possible and still be consistent with the desired objective of providing a clean, safe and comfortable home, with adequate nursing care, for those in need of such services, and unable to care for themselves.

During the relatively few years of licensing activities, the approach to the problem has become clarified.

1. Licensure standards should be basic in character. They must be a practical tool designed for the specific purpose of maintaining some degree of uniformity, and yet flexible enough to permit conformity.

2. Desirable goals exceeding licen-

(Continued on Page 353)

# Medical News

## Atlantic City to Host A.M.A. Annual Meeting

Some 15,000 physicians will gather in Atlantic City, N. J., next June 8-12 for the 108th annual meeting of the American Medical Association.

Besides physicians, the meeting will be attended by residents, interns, nurses, technicians, students, and physicians' wives and members of their families.

The five-day convention—the largest medical meeting in the world—is being held in Atlantic City for the 16th time. The first meeting was held there in 1900.

Doctors will have the opportunity to catch up on hundreds of aspects of a rapidly-changing medical world. This information will be presented in the form of scientific exhibits, lectures, motion pictures, panel discussions, televised surgical procedures, and industrial exhibits.

New medical research findings and methods of handling daily medical problems will be reported by 500 physicians in scientific papers or participation in symposium and discussion groups.

There will be over 300 scientific exhibits and a similar number of industrial exhibits on display at the famed Convention Hall. The latter group will be exhibited by pharmaceutical houses, medical equipment firms, and other manufacturers.

The House of Delegates will meet throughout the week in the Traymore Hotel, headquarters for the meeting. The 20 scientific sections of the A.M.A. and five government medical services will also be represented in the House.

First order of business for the House will be the selection of a physician to receive one of medicine's highest honors—the Distinguished Service Award. He will be selected from three persons, whose names are submitted by the Board of Trustees. Nominees are screened by the Board from names submitted by the general membership.

The opening session will be addressed by

Doctor Gunnar Gundersen, La Cross, Wis., outgoing president, and his successor, Doctor Louis M. Orr, Orlando, Fla.

A president-elect to serve one year and be inaugurated as president in 1960 will be elected during the meeting.

For the fourth year, high school students who have won special A.M.A. awards in the National Science Fair will show their prize-winning work at the scientific exhibit.

The annual film program will be highlighted by the presentation of 60 medical motion pictures.

The Woman's Auxiliary to the A.M.A. will hold its meeting Tuesday through Thursday. Representatives of the 75,000 members—all doctors' wives—will discuss their program in sessions at the Chalfonte-Haddon Hall.

Other sidelights of the meeting will be the special art exhibits including that of the American Physician's Art Association, and the 43rd annual American Medical Golfing Association tournament.

For advance hotel and meeting registration information, contact the Convention Services Department, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

## Examinations Scheduled by American Board OB and Gyn

Applications for certification by the American Board of Obstetrics and Gynecology, new and reopened, Part I, and requests for re-examination Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is August 1, 1959. No applications will be accepted after that date.

Application fee (\$35.00), photographs, and lists of hospital admissions must accompany all applications. Inquiries should be directed to Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.



## How Keogh Bill Will Aid Self Employed

High taxes and high living costs make it especially difficult for self-employed people—sole proprietors and partners—to save for old age and retirement out of current income. This is true of all people so situated: small businessmen, doctors, dentists, lawyers, accountants and other professional groups.

As a result, tremendous public interest has been aroused in proposed legislation to lighten their burden and put them, so to speak, on equal footing with the employee who can enjoy the tax and other benefits from pension and profit-sharing plans. The so-called "Keogh Bill" (formally titled "Self-Employed Individuals' Retirement Act of 1959") proposes to help such people put aside part of their earnings for retirement. It would do so by giving them valuable tax advantages now possible only under Treasury-approved pension and profit-sharing plans for employees.

Of course, the self-employed—sole proprietors or partners—can set up Treasury-approved plans for the benefit of *their* employees; but they cannot participate themselves. The result has been a natural dampening of their ardor for such plans because of their own exclusion.

Compare the unfavorable situation of the sole proprietor or partner with that of a stockholder-employee in a closed corporation whose officers—generally the chief stockholders—are technically "employees." They can therefore participate in the corporation's qualified plan and get the substantial tax benefits that it provides.

### What the Keogh Bill Would Do

As introduced in the House of Representatives this year, the Keogh Bill would allow a self-employed individual to set aside part of his earnings before taxes—within specified limits—for accumulation under a retirement plan for himself. This plan could either be a bank-trusteed plan or an insured plan. If a trust were used, its income would be tax-exempt, except where the trust engaged in a prohibited transaction.

The bill includes three basic features:

## USC Sponsors Hawaiian PG Course

The University of Southern California School of Medicine will sponsor a Postgraduate Refresher Course, for the second year, in Honolulu from July 29 through August 15.

Interested physicians will depart from Los Angeles via United Air Lines on July 29 and return to Los Angeles on August 15 via the S. S. Lurline. On the return trip, physicians will have the option of returning by air on August 11 if pressed for time. Those electing to return by ship will have the benefit of additional courses while underway.

While in Honolulu, afternoons and weekends are free so that participants and their families will have the opportunity to enjoy the many recreational facilities of the Island.

The course is organized to permit the physician to attend one of several programs. By such a system, the physician will be able to choose from topics suited to his needs. In addition to lectures, there will be workshops in ECG and X-ray diagnosis as well as water and electrolyte balance and the diagnosis of jaundice. Emphasis is being placed on practical diagnosis and therapy.

Further information may be obtained by contacting Phil R. Manning, M.D., Associate Dean and Director of the Postgraduate Division of the University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33, California.

---

1. Starting in 1959, a self-employed individual would get a deduction (up to \$2,500 per year) for a deposit in a restricted retirement trust fund or for a premium for a restricted retirement policy. Lifetime set-aside would be limited to \$50,000.

2. He would not be taxed on the build-up of values in the fund or policy before retirement.

3. He would be taxed only when he received payments from the fund or under the policy—normally after retirement. But chances are he would then be in a lower bracket than when he made the deposit or paid the premium.



## House Staff Physicians Will Meet May 22

Twenty-five interns and residents will present scientific papers May 22 at the Oklahoma Association of House Staff Physicians meeting at the University of Oklahoma Medical Center. They represent seven different hospitals.

The Association was organized five years ago to encourage house staff physicians to report their interesting cases and research studies, thus helping prepare themselves for the dissemination of scientific knowledge during their own postgraduate life, James A. Webb, M.D., chairman, explained. Doctor Webb is a resident in surgery at University Hospital.

H. Earl Ginn, M.D., resident in medicine, is program chairman and Frank Howard, M.D., resident in surgery, is secretary-treasurer. Both are serving at the Oklahoma City Veterans Administration Hospital.

Residents and interns will make 15 minute presentations, with sessions beginning at 8:15 a.m., and continuing through 5:15 p.m. in the Medical Center auditorium.

In addition, two lectures by guest speakers are scheduled. David M. Gould, M.D., professor and head of the Department of Radiology, University of Arkansas Medical Center, will speak at 10 a.m. on hazards of radiation. J. Raymond Hinshaw, M.D., professor of surgery, University of Rochester School of Medicine and Dentistry, will address the group at 3 p.m.

Here are the papers to be given by house staff men:

8:30 a.m., "Fluorescence of Quinacrine-Labeled Leukocytes: A Preliminary Report," R. E. Bettigole, M.D., Oklahoma Medical Center; 8:45 a.m., "Studies of an Outbreak of Infantile Diarrhea Due to Pathogenic E. Coli," James E. Mays, M.D., Oklahoma Medical Center; 9 a.m., "The Influence of Clorpectin WCS-90 on the Bacterial Complications of Surgery," Frank Howard, M.D., Oklahoma Medical Center; 9:15 a.m., "Pulmonary Hypertension and Plasma Thromboplastic Antecedent (PTA) Deficiency Experimentally Induced in Dogs by

Amniotic Fluid Infusion," James W. Hampton, M.D., Oklahoma Medical Center; 9:30 a.m., "Serial Fibrinogen-Determinations in Leukemia," Jack D. Welsh, M.D., and Charles W. Robinson Jr., M.D., Oklahoma Medical Center.

10:30 a.m., "A New Instrument for Pelvic Procedures," Norman A. Cotner, M.D., Mercy Hospital, Oklahoma City; 10:45 a.m., "Evidence for the Presence of an Inhibitor of Vitamin B-12 Absorption in the Intestine," Walter L. Honska Jr., Oklahoma Medical Center; 11 a.m., "Antral Inhibition of Gastric Secretion," Robert M. Faggella, M.D., Oklahoma Medical Center; 11:15 a.m., "Carcinoma of the Tongue," C. A. Grimm, M.D., Oklahoma Medical Center; 11:30 a.m., "Excision of Ovarian Cysts in Patients Under 21," Harold C. Wood, M.D., St. John's Hospital, Tulsa; 11:45 a.m., "Use of Intravenous Urea in Edematous States," John D. Kyriacopoulos, M.D., Oklahoma Medical Center; 12 noon, "The Management of Surgical Conditions During Pregnancy," Jim H. Calhoon, M.D., Hillcrest Medical Center, Tulsa.

1:30 p.m., "Pulmonary Hyaline Membrane Disease and the Role of Gestational Abnormalities," Larry H. Beisel, M.D., Oklahoma Medical Center; 1:45 p.m., "Renal Tubular Secretion of Magnesium in Dogs," H. Earl Ginn, M.D., Oklahoma Medical Center; 2 p.m., "Open vs. Closed Atrial Drainage During Cross-clamping of the Thoracic Aorta," David D. Snyder, M.D., Oklahoma Medical Center; 2:15 p.m., "Interesting Complications of Meckel's Diverticulum," Harold W. Calhoon, M.D., Hillcrest Medical Center, Tulsa; 2:30 p.m., "Clotting Abnormalities Associated with Cryofibrinogenemia: Four Case Reports," John Kalbfleisch, M.D., Oklahoma Medical Center.

3:30 p.m., "Postpartum Urinary Retention," Joseph Harroz, M.D., St. Anthony Hospital, Oklahoma City; 3:45 p.m., "Early Diagnosis of Cancer of Stomach and 'Precancerous' Conditions by Biopsy of Gastric Mucosa," Kent Braden, M.D., Oklahoma Medical Center; 4 p.m., "Appendiceal Lesions—Observation of 4000 Appendectomies," Jack Stephenson, M.D., St. Anthony Hospital, Oklahoma City; 4:15 p.m., "Coro-

nary Blood Flow Determined by a Radioactive Surface Counting Technique," Gunnar Sevelius, M.D., Oklahoma Medical Center; 4:30 p.m., "A Reactant to Human Lung in Patients with Pulmonary Disease," R. L. Carpenter, M.D., Oklahoma Medical Center; 4:45 p.m., "Influence of Diuretic Agents and Corticosteroids in Urinary Excretions of Magnesium in Non-oedematous Subjects," Adrian A. Kyriacopoulos, M.D., Oklahoma Medical Center; 5 p.m., "Isolation of Herpes-Simplex Virus from a Patient with Erythema Multiforme Exudativum (Stevens-Johnson Syndrome), D. W. Foerster, M.D., Oklahoma Medical Center.

## Awards Announced for House Staff Physicians Meeting

Five organizations—an increase of three—will offer awards for outstanding scientific papers presented at the fifth annual Oklahoma Association of House Staff Physicians meeting May 22 at the University of Oklahoma Medical Center.

Doctor James A Webb, resident in surgery at University hospital and Association chairman, said there has been a steady gain in the number of papers submitted and predicted the increase in award sponsors will further stimulate interest among interns and residents.

Guest speakers this year will be Doctor Raymond Hinshaw, Department of Surgery, University of Rochester School of Medicine, and Doctor David Gould, Department of Radiology, University of Arkansas School of Medicine.

The Oklahoma City chapter, Medical Service Society of America (National Association of Professional Detail Men) will offer a monetary prize for the best paper in each of three categories—surgical, medical and basic science.

In addition, the Society will establish a rotating plaque recognizing the author of the most outstanding paper. Each year the name of the winner will be engraved on the plaque and it will be presented to the hospital where he is serving an internship or residency. It will remain in the possession

of the hospital until the next annual meeting.

The Oklahoma State Radiological society will present a monetary award for the best scientific report dealing with radiology. (Doctor Peter E. Russo, professor of radiology at the Medical School, was the first to offer an award for a paper presented at the meeting. This is an outgrowth of his efforts.)

The intern making the best presentation will be cited by the Oklahoma chapter, American Academy of General Practice, which also offers a cash prize.

Another new donor is the Oklahoma Association for Mental Health, which will make awards for two outstanding psychiatric papers.

Oklahoma chapter, American College of Surgeons will select the six top papers and invite the authors to present them at the chapter's annual meeting at Sequoyah state park and to attend the conference as guests of the chapter. The College of Surgeons also has sponsored awards at past association meetings.

Oklahoma State Heart Association makes a financial contribution to help support the House Staff Physicians' program, financed by assessments from participating hospitals. The Medical Center's Office of Postgraduate education also cooperates in the yearly conference.

WANTED: Staff Physician for YWCA Camp Classen, Arbuckle Mountains. June 12 through August 28. Contact Donald J. Shellenberger, Metropolitan Camping Secretary, YMCA, 125 Northwest Fifth Street, Oklahoma City, Oklahoma.

## Seminar Program Completed By Medical Assistants Society

Program details for the first seminar to be sponsored by the Oklahoma State Medical Assistants Society have been completed. Purpose of the meeting to be held on the campus of Oklahoma State University, Stillwater on June 20, will be to provide diversified information designed to aid assistants in doing a more effective job for doctors and patients. Background information of value to the medical assistant will be stressed.

Physicians are urged to encourage their assistants to attend the one-day meeting. Original registration of \$20.00 has been changed to \$12.50. A complete program follows:

8:30-9:15 a.m.—Registration, Union Club Lobby

9:15-10:15 a.m. — "Public Relations," Alfred R. Sugg, M.D., Ada, Past President, Oklahoma State Medical Association

10:15-10:30 a.m.—Break

10:30-11:30 a.m.—"Basic Economics," Doctor Eugene L. Swearingen, Dean, College of Business

11:30-1:00 p.m.—Lunch

1:00-2:00 p.m.—"Oral and Written Communications," Doctor Ellsworth Chunn, Director, School of Communications

2:00-3:00 p.m.—"Legal Aspects of the Medical Profession," Representative, Law Firm of Foliart, Hunt and Shepherd, Oklahoma City

3:00-3:15 p.m.—Break

3:15-4:15 p.m.—"Current Legislation of Interest to Medical Assistants," John E. McDonald, M.D., Tulsa, Member, Legislative Committee, American Medical Association

4:15-5:15 p.m.—"Personal Appearance and Office Procedure," Miss Frances Koop, Personnel Training Assistant, Southwestern Bell Telephone Company, Oklahoma City

6:15 p.m.—Graduation Dinner, Doctor R. W. MacVicar, Vice-President for Academic Affairs, Oklahoma State University

## Coming Meetings

UNIVERSITY OF OKLAHOMA MEDICAL CENTER  
POSTGRADUATE PROGRAM  
Oklahoma City, Oklahoma  
Individual Postgraduate Courses

OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—May 22

A complete program for the House Staff Physicians Meeting is listed in this issue of *The Journal*.

### SERIAL POSTGRADUATE COURSE

Postgraduate Division  
UNIVERSITY OF OKLAHOMA MEDICAL CENTER  
Oklahoma City, Oklahoma  
1958-1959

June 10—Surgery—Herniae.

Further information concerning the individual and serial courses may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N. E. 13th Street, Oklahoma City, Oklahoma.

### Oklahoma Chapter

AMERICAN ACADEMY OF GENERAL PRACTICE  
September 13, 1959 Lake Murray Lodge  
Ardmore, Oklahoma

The Sixth Annual Meeting of the Red River Valley Section, Oklahoma Chapter, American Academy of General Practice, will be held at Lake Murray Lodge, Ardmore, September 13, 1959. Participants will receive four hours credit, Category 1. For further details, write to Roger Reid, M.D., 1001 15th, N.W., Ardmore, Oklahoma.

### 13th ANNUAL

ROCKY MOUNTAIN CANCER CONFERENCE  
July 22-23, 1959 Brown Palace Hotel  
Denver, Colorado

The Rocky Mountain Cancer Conference will be held at the air conditioned Brown Palace Hotel in Denver, July 22 and 23, 1959. Further information concerning the program and reservations may be obtained from Rocky Mountain Cancer Conference, 835 Republic Building, Denver 2, Colorado.

### 24th Annual Congress

#### INTERNATIONAL COLLEGE OF SURGEONS

The 24th Annual Congress of the North American Federation, International College of Surgeons, will be held in Chicago, September 13-17. The federation is composed of the United States, Canadian, Mexican, and Central American Sections. For information, write to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.



## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**TORT LIABILITY OF HOSPITAL**—A sixty-nine year old patient was awarded \$4,000 damages in an action against the hospital's insurance carrier for the negligence of the hospital's employees—a nurses' aid and a student nurse. Arkansas law permits a person to sue the insurance carrier directly in cases of this nature. While helping the patient who was recovering from an operation, a nephrectomy, out of his bed and into a wheelchair, the nurses' aid permitted her hands and arms to pass over the wound in a rough manner which caused the incision to burst open.

*McElroy v. Employer's Liability Assurance Corp., Ltd.*, 8 Negligence Cases (2d) 785 (U.S. District Court for Western District of Arkansas, Ft. Smith Division, July 3, 1958).

**MEDICAL WITNESS** — In an action in which the plaintiff sought to recover damages for injuries sustained in an automobile collision, the defendant asked that the plaintiff be ordered to submit to a physical examination by the defendant's doctor. The plaintiff objected on the basis that the doctor was a client of defendant's attorney. The Court ordered the plaintiff examined by three doctors. On appeal the defendant objected "that the examination was made by doctors selected by the court instead of by Defendant." The Supreme Court of Iowa held that there was no rule "prohibiting such action by the trial court."

*Main v. Tony L. Sheston-Luxor Cab Company*, 89 N.W. 2d 865 (Iowa, May 6, 1958)

**MEDICAL EXPERT WITNESSES** — The United States District Court for the Eastern District of Pennsylvania has adopted a "Rule for Medical Examination in Personal Injury Actions." Under this rule, prior to trial and after consultation with both parties and after a hearing, a judge may order an examination and report of the injured person by an impartial medical expert or experts. The expert is obtained from a panel of physicians designated by the Medical Society of the State of Pennsylvania, after consultation with a committee appointed by the President of the Pennsylvania Bar Association and with the Court. Copies of the report are made available to all parties. The compensation of the expert is fixed by the judge and paid equally by each party to the litigation unless the judge orders payment to be made otherwise. If the case proceeds to trial, either party or the judge may call the expert. He is then subject to questioning by any party but does not receive compensation from any litigant.

Rule for Medical Examination in Personal Injury Actions, Adopted Pursuant to F. R. Civ. P. 83 and Supplementing F. R. Civ. P. 35, U. S. Dist. Ct. for the East. Dist. of Pa.

**TAX RULING** — The Internal Revenue Service has ruled that the value of room and board furnished by an accredited school of nursing to full-time student nurses, whose training consists in part of performing services in a hospital, qualified as a non-taxable "scholarship." Such amounts should be disregarded in determining whether the student nurses received more than one-half of their support from their parents, for dependency exemption purposes.

Rev. Rul. 58-338

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*

# Organization News



**ALFRED T. BAKER, M.D.**  
President

When Alfred T. Baker, M.D., was elevated to the presidency on April 21, he stepped into the job with a wealth of background and experience. A former president of the Atoka, Bryan, Coal District Medical Society, he has also served as an 11th District Councilor for the past ten years, and has made many contributions in Association committee work.

Doctor Baker received his medical education at the University of Louisville, graduating in 1931. Following graduation, he took several years of postgraduate training at the Rhode Island Hospital and the Providence Lying-In Hospital. He moved to Durant in 1934 where he has been continuously associated with the Durant Clinic and Hospital, except for sixty-five months spent in military service during World War II.

In addition to heading the OSMA, Doctor Baker is a member of the Board of Directors of Oklahoma Society of Crippled Children.



**WALTER E. BROWN, M.D.**  
President-Elect

Walter E. Brown, M.D., elected to succeed Doctor Baker in 1960, graduated from Washington University in 1935. He then interned at Kansas City General Hospital before undertaking a radiology residency at Massachusetts General Hospital.

After spending 1937-38 in general practice, he accepted another residency. Following three years of military service, he re-entered private practice in his chosen specialty.

Presently, he is Director of Radiology of the Glass-Nelson Clinic, Tulsa. He is a Diplomate, American Board of Radiology and a Fellow, American College of Radiology.

In addition to previously holding several county society offices and currently serving on his local Board of Health, Doctor Brown has served his Association by being Program and General Chairman of the 1955 and 1957 annual meetings, respectively. He is well-known for his conscientious guidance of the Oklahoma phase of the Medicare program.



# ANNUAL MEETING HIGHLIGHTS

## **Council, Delegates Approve Idea of Service Contract for Elderly**

Nearly six hundred Oklahoma physicians registered for the 53rd Annual Meeting of the OSMA, which was held in Tulsa, April 20-22. Oklahoma's biggest medical meet was a scene of much scientific, social and business activity, with the most significant business action occurring when the Council and House of Delegates gave a green light toward the development of a service-type health insurance plan for those over sixty-five.

**The official proceedings of the House of Delegates will appear in the June and July issues**

The final ratification of the idea came after considerable and heated debate in both policy-making bodies. After hearing a lengthy report from the OSMA Committee on Health Care of the Aged which called for the development of such a program, the groups were presented with a more specific request from a joint committee, representing the Blue Shield Liaison Committee and the Insurance and Retirement Sub-Committee of the Health Care of the Aged Committee.

Because of the importance of the decision to pursue the development of health insurance for the "senior citizen" segment of the population, the committee's report is printed below, in the form passed by both policy-making bodies.

This Committee is a composite group that has drawn its members from the Blue Cross-Blue Shield Liaison Committee and the Health Care of the Aged Committee. The two committees have been working jointly to evaluate the propriety of developing health insurance plans for the over sixty-five age group.

Before reporting on the activities of this Committee, Mr. Chairman, it seems necessary to digress for a moment and briefly discuss some of the problems which have brought about the creation of this Committee and contributed to the recommendations to be made before this House of Delegates.

Organized medicine has long served as a vanguard of free enterprise throughout the socio-economic de-

velopment of our country. On several occasions, it has become necessary for physicians to rise collectively and successfully present an organized front against governmental intervention into the field of health economics. These victories have represented battles won and not wars won, for the war against strong central government is one of a chronic nature that will permit little rest for those who seek to preserve or reclaim a proper balance between governmental health programs and private enterprise.

American medicine has all too frequently been accused of a negative attitude toward any changes in the methods of providing high-quality health care to our citizens. Such statements are in error—changing health needs and the challenges presented thereby have been met with constructive action; action that has been founded upon sounder principles than those offered by federal planners.

Despite concerted efforts to maintain a sensible ratio between government and private enterprise, piecemeal legislation has established an alarming trend in the methods of financing health care. Each session of Congress sees more health bills introduced and more passed—and each new law swings the pendulum farther away from the free enterprise medical care system. Each year, more and more of our citizens fall victim to health care regimentation and sacrifice another one of their rights to be individuals.

Again we are faced with a new challenge! For two successive congressional sessions, the passage of the Forand Bill has hung ominously in the balance. It was stopped in committee in 1958 and will likely fail again this session. But informed sources look upon these blessings as merely reprieves—reprieves that will not be extended past 1960 or 1961!

Briefly, the Forand Bill will provide medical, dental, hospital and nursing home care for about fourteen million social security recipients who are over age sixty-five. The cost of a maximum of sixty days hospitalization and a subsequent maximum of one hundred twenty days nursing home care during any twelve month period would be paid from the O.A.S.I. Trust Fund. To secure funds, it would be necessary to increase the tax rates to the extent that the self-employed group would pay 7½% of the first \$4,800 income by 1969.

None of us will agree to such a legislative solution to a health problem. Yet, it would be difficult to argue that there is not a great need for more adequate machinery to enable our elder citizens to finance high-quality care—particularly when we look past the immediate problem and see a future of increasingly large numbers of elder citizens. In addition to the fourteen million presently over age sixty-five, there are an estimated twenty-two mil-



lion persons over sixty. The combined total amounts to one-quarter of the voting population of the country!

From 1900 to 1950, the population doubled and the number of people age sixty-five quadrupled. There is little reason to believe that this trend will not continue—some predictions estimate that, ten years from now, over one-half of the population will be in that particular age group! We are rapidly becoming a nation of the young and the old!

With an expanding aged population facing us and with the immediate threat of Forand-type legislation, it seems evident that medical men and other believers in free enterprise must take positive steps for the present and future care of our aged. It now seems apparent that medicine must deliver a counter-punch to government-financed health care by developing a voluntary financing system that will destroy the need for government intervention.

Recognizing these problems, and the role that organized medicine has played in the development of prepaid health plans and voluntary health insurance, the American Medical Association House of Delegates took the following action at the December, 1958, meeting in Minneapolis:

"For persons over sixty-five years of age with reduced incomes and very modest resources, it is necessary immediately to develop further the voluntary health **insurance** or **prepayment** plans in a way that would be acceptable both to the recipients and the medical profession. The medical profession must continue to assert its leadership and responsibility for assuring adequate medical care for this group of our citizens.

"Therefore, the Council on Medical Service recommends to the House of Delegates the adoption of the following proposal: That the American Medical Association, the constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or **prepayment program** for the group over sixty-five with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group, which will permit the development of such **insurance** and **prepayment** plans at a reduced premium rate."

In conformance with the AMA action, the OSMA committees, already concerned with the problems of the aged, held a series of joint meetings in this regard. During these meetings, the joint group discussed a variety of alternate plans to meet the health cost problem for this age segment. Finally, the need for a cautious approach to this problem conflicted with the time element and it was decided that the proposal to this House of Delegates would be based upon certain general principles rather than on the submission of a specific program.

The group, therefore, approved the following motion which it now respectfully offers for your consideration:

"It is recommended:

1. That a service-type health insurance program be approved for the sixty-five and over age group.
2. That service benefits be offered to those whose income and net worth fall below approved ceilings, with \$6,000 as the suggested income ceiling.
3. That it be stipulated that the following points be taken into account in the development of such a service contract:
  - A. Physicians and hospitals are to be offered the best possible fees, in keeping with a saleable premium.
  - B. After allowing ninety days following the annual meeting for the development of the program, a special meeting of the House of Delegates will be called to ratify, reject or modify the proposal."

As called for in the report, President Baker has set the joint group in motion to develop a specific and detailed insurance program which will be subsequently offered to the House of Delegates for final action.

#### Other House Actions

Although the spotlight was on the senior citizen problem, House of Delegates also:

- Elected Walter E. Brown, M.D., Tulsa, to the office of President-Elect and Charles E. Green, M.D., Lawton, to the office of Vice-President. Malcolm E. Phelps, M.D., El Reno, and R. Q. Goodwin, M.D., Oklahoma City, succeeded themselves as AMA Delegate and Alternate respectively.

- Attentively heard Doctor Gunnar Gundersen, President of the American Medical Association, review AMA policies with special emphasis on the problems of the aging.

- Approved the report from the Council which called for: the continued accumulation of reserve funds until such time as a reserve of one year's operating capital is reached; a trial-basis change in the organizational structure which would create five major Councils and re-name the Council the Board of Trustees; ratification of the findings of a survey which indicated that Oklahoma physicians continue to favor the principle of free choice of physician and are opposed to any type of closed panel system.

The reorganization is designed to spread administrative responsibility over a larger group, by establishing Councils on Public Health, Public Policy, Socio-Economic Activities, Insurance and Professional Education. The thirty to forty committees that are appointed annually by the president would then be slotted under appropriate Councils, thereby departmentalizing the association work and relieving the president from the increasingly difficult task of personally directing all committee endeavors. Conflicting terminology would make it necessary to change the name of the Council to that of Board of Trustees, but this and other related changes to the Constitution and By-Laws will be held until the 1960 meeting, in order to determine the workability of the new organizational structure.

- Rejected a resolution which would make AMA membership voluntary rather than mandatory and approved one calling for the endorsement of House Bill 820, a legislative measure designed to establish a medical examiner system in Oklahoma in lieu of the antiquated coroner's system.

- Heard and approved excellent reports from all major committees, one of which established a Medico-Legal Code between the Oklahoma State Medical Association and the Oklahoma Bar Association. The attorney group had previously endorsed the code which is designed to enhance the compatible relationship existing between the two professions.

#### **The Scientific Slant**

Policy making, which took place on Saturday and Sunday, gave way Monday morning to an excellent scientific program. Guest lecturers Buxton, Davis, Dyer, Huggins, Julian, Mason, McCullagh, McDonald, Millikan, Parsons, Smith, and Wilson teamed with local speakers to present one of the finest scientific programs ever assembled in the state. Roundtable luncheons were well attended, as was the section on medical motion pictures.

#### **On the Lighter Side**

Doctor James Brown and his Greene

County Medical Society Boys held physicians and their wives in the palms of their talented hands when they entertained at the President's Inaugural Dinner, held Tuesday night at the Mayo. Clever medical parodies of popular songs were rendered with professional aplomb that will not be forgotten by those who attended the sell-out affair.

Following the dinner, entertainment and the changing of administrations, over five hundred physicians and wives adjourned to the Cimarron Ballroom to dance to the music of Charlie Barnet and hear more top-flight entertainment in the form of the Topnotchers, a trio of musical comedians.

On Wednesday afternoon, the part-time athletes struck out for the Oaks Country Club, where the annual golf tournament was held. Emerging as golf champ in a field of seventy-six was Doctor E. Malcom Stokes, Tulsa physician and perennial winner of the event.

Following the golf match, forty-eight enjoyed a social hour and dinner at the club. Champions and duffers alike were awarded prizes for the afternoon's endeavors.

#### **Generally Speaking**

Typically, the OSMA meeting was the hub of a multitude of events and related meetings. Nearly a dozen specialty societies and related medical organizations, as well as the Woman's Auxiliary, caught the meeting fever and conducted concurrent get-togethers.

Oklahoma's efficient auxiliary met Sunday, Monday and Tuesday to look back over another successful year and lay plans for the succeeding one. Mrs. Iron H. Nelson turned over the auxiliary reins to Mrs. Clifford M. Bassett and Mrs. Virgil Ray Forester was tagged as President-Elect. The Auxiliary was honored by the presence of Mrs. E. Arthur Underwood, President of the AMA Auxiliary and Mrs. George W. Owen, President of the Southern Medical Association Auxiliary.

Another auxiliary function was the Physician's Hobby Show, which was incorpor-



ated into the Scientific Exhibit Section. Nearly thirty physicians answered Mrs. W. R. R. Loney's call to display their handicrafts.

Technical and scientific exhibitors once again added much to the success of the meeting. Forty-four technical and thirteen scientific exhibits contributed to the scientific and educational merit of the meeting.

### Accolades

There is much hard work behind every successful meeting, and the 53rd was no exception. Those who took advantage of the great variety of educational and social offerings are indebted to the physicians and the employees of the Tulsa County Medical Society for their contributions in the planning and conduct of the meeting and related events.

A tip of the hat to the following individuals:

### ANNUAL MEETING COMMITTEES

Edward L. Moore, M.D., *General Chairman*

#### PROGRAM COMMITTEE

B. W. Steele, Jr., M.D., *Chairman*  
W. O. Smith, M.D.  
N. C. Gaddis, M.D.

#### SOCIAL EVENTS

B. W. Ward, M.D., *Chairman*  
R. W. Goen, M.D.  
R. W. Spencer, M.D.  
E. M. Stokes, M.D.

#### GOLF

W. F. Thomas, Jr., M.D., *Chairman*  
Simon Pollack, M.D.  
W. M. Gross, M.D.  
W. M. Benzing, Jr., M.D.

#### PUBLICITY

M. O. Hart, M.D., *Chairman*  
C. S. Lewis, Jr., M.D.  
R. M. Michols, M.D.  
Harlan Thomas, M.D.  
Terrell Covington, Jr., M.D.

#### REGISTRATION AND HOTELS

E. R. Shapard, M.D., *Chairman*  
V. W. Wood, M.D.  
J. E. Kraft, M.D.

#### MEDICAL MOTION PICTURES

W. C. Pratt, M.D., *Chairman*  
D. N. Burns, M.D.  
D. C. Walker, M.D.

## Flying Physicians Plan Alaskan Cruise

Plans for a scheduled Alaskan Cruise have been completed by the Flying Physicians Association. Participants will have a rendezvous in Great Falls, Montana on June 14, 1959, before departing in mass the following day for Edmonton, Alberta, Canada.

Five additional stops for over-night accommodations and refueling have been arranged along the route to Anchorage, where a three day meeting will be held.

Topics for the meeting include "The Human Maintenance of the Man-Missile Team," "Physical Examinations and Flying Fatalities," "Crash Rescue Operations in Alaska," "Cold Injuries" and "Arctic Health Research." Guest speaker for the program will be Governor Leo A. Hoegh, National Director, Office of Civil Defense and Mobilization, Washington, D.C.

Two Oklahoma physicians who are planning to join the flight will be F. R. First, M.D., Checotah, and Malcom Stokes, M.D., Tulsa. They will be part of a 53-plane flight which will represent 48 states.

Additional information concerning the cruise may be obtained by writing to Mark E. DeGroff, Executive Director, Flying Physicians Association, Inc., P.O. Box 3275, Tulsa, Oklahoma.

### COMMERCIAL AND SCIENTIFIC EXHIBITS

H. K. Ihrig, M.D., *Chairman*  
C. T. Thompson, M.D.  
N. L. Dunitz, M.D.

### CONVENTION MANAGER

Jack Spears, *Executive Secretary*  
Tulsa County Medical Society

### AULD LANG SYNE

With the passing of each annual meeting, the officers, councilors and committee men who pass their duties on to others deserve a collective pat on the back from the physicians of Oklahoma. To Doctor Mohler and his fine administration . . . "A Job Well Done!" To Doctors Baker and Brown . . . best wishes for the continued advancement of the Oklahoma State Medical Association!





## New Muskogee General Hospital Opened

Dedication ceremonies, followed by an open house, formally opened the new Muskogee General Hospital on April 4. A non-profit, charitable organization, built by the city, the hospital was financed by Federal Hill-Burton Funds, Memorial Room Furnishing Funds, municipal bond issues and hospital funds.

The hospital was planned around four functional groupings of patients—surgical, medical, maternity and pediatrics. For each grouping, such specialized facilities as nurseries, recovery rooms and nurses' stations are located as near as possible for fast care of patients. A convenient service nucleus fills service needs such as supply, sterilization, laboratory and x-ray, and emergency treatment, as well as medical records and other auxiliary needs.

### Hospital Planned in Two Phases

Consisting of 78,683 square feet, phase I of the new hospital has been completed at a cost of \$2,090,000. With a total of 110 beds, it offers many innovations including central oxygen and suction systems; central dictating and surgeons' dictating systems;

separate departments for pathology, radiology, physical therapy and diet; a chapel, public cafeteria and a hospitality shop. The brick building has individually-controlled year around air-conditioning.

A closed circuit broadcasting system enables the patients to pick up music or TV broadcasts from the hospital's own broadcasting station. A nurse-to-patient communications system has also been installed.

The operating suite includes two major and one minor surgery rooms, an emergency operating room, orthopedic surgery room, fracture room, cystoscopic surgery room, and post-operative recovery accommodations.

The projected phase II of the building program is to begin soon, taking advantage of the hospital's expansibility. The new space will enable the hospital to launch a plan of "Progressive Patient Care," allowing patients to enter under "zones" of varying prices and types of care, according to their needs. Completion of the new phase will increase the normal bed capacity to 170 or a maximum of 200.

## Essay Winners Named



Winners of the 12th Annual Essay Contest sponsored by the Association of American Physicians and Surgeons are shown receiving awards from J. Floyd Moorman, M.D., contest chairman for Oklahoma. Grouped around Doctor Moorman from left to right are Patricia Ent, first place winner, Mary DeVore, second place winner and Louise Coats, who won third place. All three winners are Oklahoma City high school seniors. Contestants were offered a choice of two subjects: "Advantages of Private Medical Care" and "Advantages of the American Free Enterprise System."

## County Society Buys Livestock

The Annual Junior Livestock show, recently held in Shawnee, was again supported by the Pottawatomie County Medical Society when they purchased the grand champion steer, lamb and barrow.

The medical society paid 45 cents per pound plus an 18 cent premium for the grand champion steer, a 1,010 pound Hereford. The grand champion Southdown lamb brought \$1.25 per pound for the 71-pound animal. A 190-pound Poland champion barrow sold for 90 cents per pound.

Last year, every champion at the same show was purchased by the Pottawatomie Society.

## A Cure for Breadwinner Blues

For the majority of patients with injuries or sickness, time lost is in proportion to the pathology and there is an orderly response to treatment. Some men, usually for economic reasons, would shorten or ignore the convalescent period and take a chance that early return to work would not hinder their ultimate chances of full recovery.

There is another group whose return to work is delayed by slow response to treatment. Part of this may be due to real pathology and part psychological disturbances; such as trouble at home, financial or otherwise; worry about the job, real or imaginary. This type of patient may be affected greatly by the physician. He can be delayed and may be injured more by the physician saying, "you should take a few weeks off." Most of these will not be helped by being away from work and can be made worse.

There is another patient who wants to feel that he is physically and emotionally able to carry on his work but needs the firm personal assurance of his physician that he is able to do so. He may present his complaints in their worst light, inwardly hoping the physician will brush them aside with logical reassurance. When he is fully satisfied, he will return to work with his old vigor and enthusiasm. Failure to recognize this demand for reassurance, and to advise being away from work may tend to confirm the patient's worst fears about his injury or illness. To take such a person firmly in hand and guide him back to his job with a minimum delay is a service to all concerned, particularly the patient.

Prepared by  
OSMA Committee on Occupational Medicine





Five Jackson County physicians who were recently honored on Doctor's Day are shown above with H. K. Speed, M.D., who presented them with Fifty-Year pins. Pictured (left to right) are: Doctor Speed, E. A. Abernethy, M.D., E. W. Mabry, M.D., R. H. Fox, M.D., R. Z. Taylor, M.D., and H. N. Bussey.

### Five From Jackson County Join Fifty Year Club

Five Jackson County physicians were honored for fifty years of medical practice on March 30, during the local Auxiliary's Doctor's Day celebration. The addition of the new members brings the total Jackson County membership in the OSMA's Fifty Year Club to seven.

At a dinner held in the Grace Methodist church, H. K. Speed, M.D., former president of the state association from Sayre and youngest holder of the half-century honor, presented lapel pins to the following physicians as he welcomed them into the exclusive club: E. A. Abernethy, M.D., Altus; H. N. Bussey, M.D., Altus; R. H. Fox, M.D., Altus; E. W. Mabry, M.D., Altus; and R. Z. Taylor, M.D., Blair.

E. S. Crow, M.D., Olustee, and L. H. McConnell, M.D., Altus, had previously received similar honors.

The concentration of "senior" physicians is the largest of any county in the state. Three of the group are continuing practice

while the others have retired to enjoy other forms of activity.

### Legislature Takes Note

The collective accomplishment of the Jackson County medics was officially recognized by the Oklahoma State Legislature, where both houses passed a resolution commending them "... on behalf of the people of the State of Oklahoma for their years of service in ameliorating the sufferings of their fellow human creatures ..."

The resolution pointed out that "... the donation of one's time and physical efforts for more than half a century to that calling which has as its objectives the healing of one's fellowman and the mitigation of human misery and suffering is most worthy of the notice and approbation of one's fellow citizens."

"... contributions made through the years to the communities which they serve by these men who have given their lives to the ministrations of the ill and afflicted will cause their names to be remembered with undying gratitude by those who benefited, or whose loved ones were benefited, by the professional attentions of these healers."



# BLUE CROSS COUNTY UTILIZATION RATES\*

## Hospital Care Used

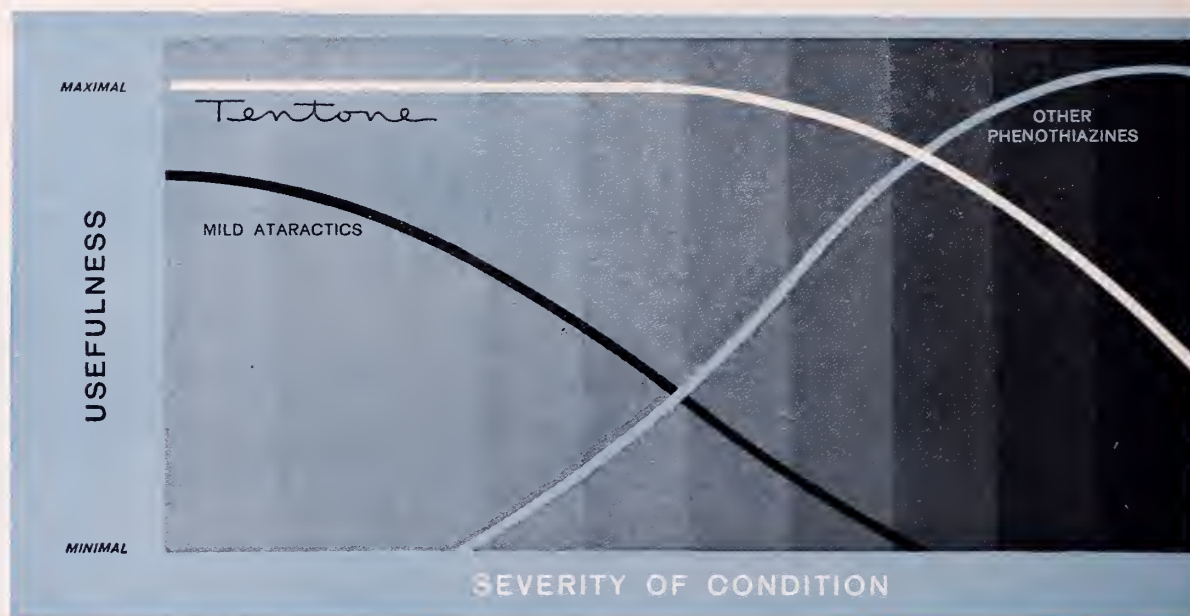
County	1954-57 (average)	1958	County	1954-57 (average)	1958
Adair	115.0	122.0	LeFlore	80.5	86.9
Alfalfa	92.0	90.1	Lincoln	88.7	108.5
Atoka	88.7	92.0	Logan	69.0	57.1
Beaver	98.2	100.5	Love	79.7	76.4
Beckham	93.2	101.2	McClain	94.2	89.3
Blaine	101.7	115.0	McCurtain	106.0	113.0
Bryan	69.7	70.5	McIntosh	96.0	66.4
Caddo	78.7	97.1	Major	116.0	97.8
Canadian	82.5	83.3	Marshall	78.0	93.8
Carter	81.5	92.3	Mayes	106.2	92.6
Cherokee	93.5	113.3	Murray	76.2	69.1
Choctaw	111.7	106.7	Muskogee	78.2	78.4
Cimarron	104.7	88.7	Noble	115.5	98.0
Cleveland	83.7	84.8	Nowata	131.5	120.3
Coal	100.0	126.6	Okfuskee	103.0	91.5
Comanche	92.2	89.9	Oklahoma	71.2	78.1
Cotton	78.0	91.6	Okmulgee	91.7	95.4
Craig	67.2	98.4	Osage	103.2	102.3
Creek	110.5	109.9	Ottawa	90.7	101.8
Custer	81.2	104.2	Pawnee	101.5	109.3
Delaware	66.0	100.9	Payne	97.2	93.0
Dewey	76.2	86.7	Pittsburg	117.7	103.9
Ellis	79.7	79.0	Pontotoc	102.5	101.0
Garfield	101.7	115.0	Pottawatomie	84.7	84.5
Garvin	74.5	75.0	Pushmataha	124.5	113.0
Grady	69.0	77.0	Roger Mills	87.2	111.6
Grant	95.5	106.4	Rogers	105.5	96.4
Greer	88.7	81.5	Seminole	83.7	78.5
Harmon	85.7	60.6	Sequoyah	119.5	89.7
Harper	88.7	90.1	Stephens	91.5	97.0
Haskell	57.7	73.3	Texas	102.2	118.1
Hughes	99.5	106.1	Tillman	79.7	115.4
Jackson	71.7	82.6	Tulsa	96.5	103.8
Jefferson	121.5	133.5	Wagoner	78.5	97.6
Johnston	77.0	74.0	Washington	115.0	100.5
Kay	98.2	90.3	Washita	62.2	108.4
Kingfisher	69.7	81.9	Woods	108.7	107.2
Kiowa	87.5	88.2	Woodward	94.2	91.4
Latimer	92.5	114.8	TOTAL	90.7	94.6

\*Released at the request of the Blue Cross-Blue Shield Liaison Committee for the Information and Education of OSMA members.

ANNOUNCING



A HIGHLY EFFECTIVE  
TRANQUILIZER FOR  
EXTENDED OFFICE  
PRACTICE USE



**POSITIVE CALMING  
ACTION ADAPTED  
FOR LOWER RANGE  
OF EMOTIONAL  
DISORDERS**

The development of TENTONE® Methoxypromazine Maleate *Lederle* does not duplicate primary function of existing tranquilizers. TENTONE fills the need for a practical, potent agent for extended use in everyday practice (as illustrated above).

Action of TENTONE Methoxypromazine Maleate approaches that of the strong phenothiazines without their drawbacks. Calming response is positive and rapidly apparent to both patient and physician. However, as a basic phenothiazine modification, TENTONE allows full therapeutic application in the mild and moderate range of anxiety-tension and somapsychic disorders most usually seen in general practice.

**EXCELLENT  
TOLERATION—  
MARKED  
REDUCTION IN  
COMPLICATIONS**

Incidence of untoward reactions is exceptionally low and approximates the mild ataractic drugs. Reduction in sensitivity reaction, intestinal distress, blood, brain or liver toxicity is striking, particularly in the low dosage range. TENTONE exhibits greater freedom from depression and drug habituation. Physical and psychic orientation is usually preserved. Occasional drowsiness may be encountered, particularly in higher dosages. In moderate to more severe cases, this sedative effect may be desired.

TENTONE has thus been described as one of the easiest tranquilizers to handle in office practice. In indicated cases, the physician may be relieved of the patient's unnecessary concern over his own illness. In contrast to the previous types of drugs, complaints over induced distress or inadequate benefit are rare.



WHEN MORE THAN  
MILD SEDATIVE  
EFFECT IS DESIRED

Consequently, TENTONE is more useful than other ataractic drugs in two areas: (1) mild to moderate conditions—when more than mild sedative effect is sought, (2) middle range of moderate to severe cases—when less than psychopathology is involved.

*Indications include* ■ common anxiety-tension states ■ obsessive-compulsive behavior ■ neurosis ■ depression ■ situational anxiety and hysteria

*And the emotional components of:* ■ agitation ■ restlessness ■ tremors ■ insomnia ■ alcohol- and drug-withdrawal syndrome ■ hyperkinesia ■ prenatal anxiety ■ rheumatic disorders ■ dermatoses ■ menopausal syndrome ■ premenstrual tension ■ peptic ulcer, other g.i. disorders ■ asthma, other allergy ■ multiple sclerosis, arteriosclerosis ■ malignancy, other progressive diseases

POSSIBLE  
POTENTIATION OF  
ANALGESICS  
AND NARCOTICS

Since tranquilizing drugs may potentiate the action of pain-relievers, sedatives, and barbiturates, they should be used with caution in conjunction with them, or to achieve a greater response to these drugs in various conditions when desired. They may also be useful in reduction of effective dosage to better tolerated, or non-habituating levels.

ADAPTABLE  
LOWER DOSAGE  
RANGES

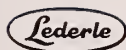
Dosage must be individualized to severity of condition and response desired.

*In mild to moderate cases:* varies from 30 to 100 mg. daily.

*In moderate to severe cases:* from 75 to 500 mg. daily.

In psychotic or institutionalized patients, TENTONE may be useful as a substitute when toxicity precludes effective dosage of other phenothiazines, or as maintenance after hospitalization. Dosage may range from 100 to 1500 mg. daily in divided doses.

Supplied: 10 mg., 25 mg. and 50 mg. tablets



LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, N. Y.

# *Have You Heard?*

BERNARD E. GUENTHER, M.D., former Oklahoman who was recently separated from the military service, has joined the staff of the Durant Clinic and The Durant Hospital.

D. C. CLEMANS, M.D., formerly of Harts-horne, recently opened offices in Skiatook.

R. L. CURRIE, M.D., who has practiced in Sallisaw since 1951, is moving to Stilwell where he plans to open his offices in a new building which is nearing completion.

WILLIAM S. DANDRIDGE, M.D., Muskogee, has been appointed as a member of the American College of Surgeons Committee on Trauma for Oklahoma.

B. T. BRUNDAGE, M.D., Thomas, has been re-appointed as a member of the State Board of Health by Governor J. Howard Edmondson.

RALPH SIMON, M.D., Clinton, has recently been named as a member of the Board of Directors of the Oklahoma Division, American Cancer Society. He succeeds Paul Lingenfelter, M.D., also of Clinton.

ONIS FRANKLIN, M.D., Broken Arrow, was named Tulsa County's "doctor of the year" by the Auxiliary to the Tulsa County Medical Society.

HAYDEN H. DONAHUE, M.D., Director of Mental Health for the State of Oklahoma has recently been appointed by Governor J. Howard Edmondson to the Southern Regional Council on Mental Health Training and Research of the Southern Regional Education Board. Doctor Donahue is replacing Mr. Paul Harkey, Oklahoma City attorney, who resigned from the Council recently.

DOCTORS E. C. LINDLEY, E. H. LINDLEY, and DANA C. RYAN held open house in the new Lindley Hospital, Durant, April 12.



## **Henry K. Speed, Jr., Promoted to Colonel**

Recently promoted to the rank of colonel at the 3550th USAF Hospital, Moody AFB, Ga., was the commander, Henry K. Speed, Jr., native of Sayre, Oklahoma and son of Doctor and Mrs. H. K. Speed of that city.

After graduating from the high school in Sayre, Colonel Speed attended Oklahoma University in Norman and the Oklahoma University School of Medicine in Oklahoma City, receiving his degree in 1933.

The hospital commander came to Moody in August, 1958 from a two-year assignment as the commander of 5010th USAF Hospital in Alaska. His overseas duty also includes a tour from 1952 to 1954 in England.

ROBERT A. McLAUHLIN is leaving May 31st to spend a week at the Burns Center, Brooks Army Hospital, San Antonio, Texas. The information obtained there will be used in teaching at the University of Oklahoma School of Medicine.

HARLAN THOMAS, M.D., Tulsa, was recently chosen president-elect of the Tulsa Academy of General Practice.

BROADWAY CLINIC AND HOSPITAL has been announced as the new name of the Baxter Clinic and Hospital of Shawnee.



## Rx for Freedom

Before you'd go all-out on a new drug or clinical technique, you'd ask a lot of tough questions, wouldn't you?

Is it safe? Who discovered it? What are the after-effects?

Is it habit-forming? What tests have been made?

All right, let's talk about a new Rx for Freedom—Freedom for yourself and your country. Our Prescription for Freedom? A U. S. Savings Bond—taken at least once a month. And no matter what questions you ask about this Rx, you'll find it's good medicine.

U. S. Savings Bonds are the safest investment you can buy. They're backed by the resources of the United States; they grow bigger year by year. Every \$75 you put into a bond today will bring you \$100 in just eight years and eleven months.

Savings Bonds have been tested and approved by millions of thrifty Americans—you can see the results of their savings in the cars, the TV sets, the homes of people all around you.

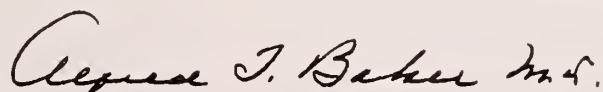
All the after-effects of Savings Bonds are good ones. When held until maturity, you get \$1,000 back for every \$750 invested. You can cash them in whenever you want to. And, if bonds are stolen or burned you can quickly get new ones.

Savings Bond buying *is* habit-forming—but no one has ever suffered from the habit yet. Families save bonds for education, home improvements, travel, a new house. Others—many doctors and dentists among them—buy bonds as part of their family security program.

And, when you buy your Bonds, you'll know—and feel better for knowing—that you are a working partner with Uncle Sam—supplying our military forces, and helping lick inflation.

A good prescription? You bet it is. You can buy Savings Bonds at any bank. Even better—why not sign up now at your own bank for the Bond-a-Month plan? Save for your future—and save for your country's future. It's the best investment you can make.

Sincerely,

A handwritten signature in cursive script, reading "Clarence J. Baker M.D.", positioned below the typed name.





## Construction Starts on Northside Professional Building

Construction has begun on the new Northside Professional Building at N. W. 89th and Western Avenue in Oklahoma City. The section now being built is the first unit of several which are planned to eventually provide offices for 12 physicians and dentists.

Pink brick, aluminum and glass are being used in the construction of the building, which will contain 10,000 square feet of floor space. Parking for 100 cars will be also provided.

The unit now under construction will embrace fifty-two rooms, an emergency room, minor surgery room with four convalescent beds and an ambulance entrance. Features of the air-conditioned building will include sliding doors, a patio, separate children's reception room where continuous cartoon movies will be shown and a basement which will house a dining room, kitchen and lounge for the staff. The dental suites will have

glass walls overlooking a landscaped patio.

Opening their offices in the first unit of the building will be Marcus L. Cox, M.D., I. C. McLendon, M.D., L. D. Wright, DDS., William E. Cole, DDS., and Don McCarthy, Dental Hygienist.

Architects for the building are Sorey, Hill and Sorey, Oklahoma City. It is being constructed by the Commander Construction Company.

### Plastic Surgery Residency

Applications for Residency Training in Plastic Surgery at St. Anthony Hospital and Medical Center are now being reviewed. The first opening will be July, 1959. Address inquiry to George H. Kimball, M.D., 321 Pasteur Building, Oklahoma City, Oklahoma.

# Book Reviews

CLINICAL ENZYMOLOGY. 1958, Gustave J. Martin. cloth cover, pg. 230 (First Edition). Little, Brown & Company. \$6.00.

A book with the title "Clinical Enzymology" should appeal to many practicing physicians. For the average doctor the term "enzymes" refers to vague chemical media which are the property of a few biochemists.

Doctor Martin and five contributing authors have covered in a very satisfactory fashion the large field of enzymology. The first chapter is concerned with protein biology, the cornerstone of enzymatic chemistry. In this chapter there is a concise discussion concerning the basic structure of proteins, the antigen-antibody reaction from an enzymatic standpoint, the antigenicity of enzyme preparations and the multivalent characteristics of enzymes. In an interesting discussion of the concept of enzyme action the author states "the function of the enzyme is simply that of creating an environment in which a given chemical reaction can occur with greater ease."

The next two chapters consider the many biochemical facets of enzymes that have clinical use—trypsin, chymotrypsin, ribonuclease, cholinesterase, and hyaluronidase.

A section is devoted to the parenteral use of enzymes and it is impressive to learn how much of clinical medicine from both diagnostic and therapeutic aspects is directly involved with enzymology. There is a discussion of the above enzymes in various clinical conditions. Impressive per- and post-treatment illustrations concerning the use of parenteral trypsin in cases of decubitus ulcers, thrombophlebitis, and other conditions are presented. The toxic effects of enzymes in clinical usage are also discussed.

The section on the diagnostic use of the enzymes is of particular interest. A detailed description of the measurement of amylase and trypsin in pancreatic disorders, hyaluronidase and anti-hyaluronidase in rheumatic diseases, cholinesterase in hepatic diseases and malnutrition, and enzymatic derangements in liver and bone disease is given.

HORMONE PRODUCTION IN ENDOCRINE TUMORS, 1958, Ciba Foundation Colloquia on Endocrinology, Vol. XII, Editors G. E. W. Wolstenholme & Maevae O'Connor, cloth cover, pg. 351, Little, Brown & Company. \$9.00.

Here is a book dealing with a subject that has fascinated clinicians and physiologists from their undergraduate years; functional endocrine tumors! The book is a symposium giving a comprehensive survey of recent progress in a field that is rapidly expanding due to the application of new methods of bio- and chemical assay of hormones. The book contains several articles by outstanding authors dealing with work done in the experimental production of endocrine tumors. Some of the articles also deal with the biochemical aspects of hormone production in these tumors. Several workers report their work dealing with the characterization of hormone production in endocrine tumors in man and the clinical applications of these findings. There is also some fascinating work being done in attempts to isolate the functional units of the various glands. For example, some highly interesting work has been done that suggests that the different cells of the pituitary gland are specialized with regard to trophic hormone production. Similar work is being done in the adrenal and gonadal glands.

In conclusion, it can be said that the book would be useful to the physiologists, biochemists, and endocrinologists who have a special interest in this field. It would be interesting to the practicing clinician who wants to get a good review of the basic mechanisms involved in normal and abnormal endocrine function.—*Doman K. Keele, M.D.*

The final chapter is entitled "Recapulation and Perspectives for Clinical Enzymology," and presents several intriguing, although philosophical, concepts in this field.

Although this book will appeal chiefly to the basic scientist, it should fill a definite spot for the clinician who desires to learn more of the fundamental aspects of this promising field.—*Harris D. Riley, Jr., M.D.*



# Auxiliary News

## Annual Review of Activities

### Convention Reports

The state president, Mrs. Iron Hawthorne Nelson, reported to the House of Delegates, Sunday, April 19, on the auxiliary program and activities. The state officers visited all 14 districts, attending district meetings and visiting some counties not yet organized. An increase in membership to 1155, with two new auxiliaries organized and groundwork laid for more next year, and the number of members-at-large more than tripled, make an excellent report for Mrs. Pat Fite, Sr., and Mrs. Tom C. Sparks. As vice presidents they work with the district councilors on membership and organization. Invitations are sent to eligible doctors' wives to become members of the auxiliaries in the county, or members at large if unorganized. The treasurer, Mrs. Virgil Ray Forester, was an important member of the team effort to enlist more members.

### AMA Projects Emphasized

As a constituent of the national auxiliary we follow closely the program of work approved by the AMA. Each year three or four committee projects are chosen for major emphasis. The 1958-59 priority projects were: American Medical Education Foundation; Recruitment for Paramedical Careers; the *Today's Health* magazine; and Safety.

AMEF, Mrs. Wm. R. Cheatwood, chairman, received donations from nearly every organized county auxiliary. Solicitation is not made to others than medical auxiliary members. May 30 is the date that the 1958-59 total contribution will be sent to the National Fund. Memorials and donations honoring some doctor, relative or friend are welcomed. Continued support of the medical schools is needed.

*Today's Health* magazine published by AMA "for the American Family," is one of the first projects the auxiliary assumed.

Each county auxiliary tries to obtain at least one subscription for each member. The promotion of the circulation and reading of the AMA magazine for the layman is one of our best public relation services. Our physician husbands should join us wholeheartedly with more reception room subscriptions. Many county auxiliaries send subscriptions as gifts to community, civic and church leaders, to school libraries and to the beauty shops. Mrs. P. A. MacKercher, chairman, worked hard to reach 100%.

"Every auxiliary member a safe driver in a safe car," says Mrs. David Ramsay, Ada state Safety chairman. Safety education has been the aim of the auxiliary program. Creating an awareness of the necessity of safety in the home and on the highway becomes an individual responsibility. A pamphlet, "Are you a Safe Driver?," supplied by the Oklahoma State Medical Association, was distributed by the auxiliary.

### Paramedical Careers

The recruitment for nurses has been broadened to include other careers in the paramedical field. We have cooperated with the Oklahoma Dietetic Association, the Medical Technologists and other similar groups to present health career panels to high school students.

With the Oklahoma State Nurses Association and the League of Nursing we sponsor Future Nurse clubs in high schools over the state. Mrs. H. C. Manning, recruitment chairman, is a registered nurse. On March 14, a state rally of the Future Nurse Clubs was held in the auditorium of the medical school, when each club gave a report of their activities, saw exhibits from all the schools of nursing in Oklahoma, and enjoyed the fun, fellowship and singing. Indian dances from a costumed group from Anadarko, and a "style show" of nurses caps and uniforms from the candy striper to the graduate nurse, enlivened the program.



A LOAN FUND maintained by the Auxiliary for many years has helped many student nurses complete their training. When a student nurse has been accepted and enrolled in an accredited school of nursing in Oklahoma, she may make an application through the director of Nursing. If her credentials are in order and her director approves the application, the loan will be granted. Mrs. M. L. Henry, chairman, and the committee, Mrs. Wm. R. Cheatwood, Mrs. E. C. Mohler, Mrs. L. Gordon Livingston, and Mrs. J. Powers Wolff, are the five immediate past presidents. New rules concerning the administration of the fund have been adopted recently.

#### Other Committees

The Program and Health Education Chairman, Mrs. J. J. Maril, was in charge of the Fall Training Conference which gave impetus to a vital program of work. Mrs. Charles A. Smith, Community Service chairman, directed the public relations efforts which carry out the objectives of the auxiliary. The *Sooner Physician's Wife*, with Mrs. Sam Moore, editor, has received state and national acclaim for an interesting and informative state publication. Mrs. Clinton Gallaher, Bylaws chairman, worked the entire year with her committee and many others helping to streamline new bylaws to conform with national and the state medical association. The legislative chairman, Mrs. John Records, and key woman, Mrs. J. F. York, kept the membership informed on current legislative matters, and have been ready to assist the state association in its legislative program. The Civil Defense chairman, Mrs. John A. Blankenship, is a member of the regional Woman's Advisory council of the CDA and works with the local defense committees. Mrs. Frank Adelman, Enid, mental health chairman, asked auxiliary members to work with their local mental health programs in schools, churches and other agencies. Mrs. James Luton was very proud of the new auxiliary to SAMA organized in Tulsa this year. The incoming president, Mrs. Clifford M. Bassett, will be chairman of delegates for the national convention, June 8-12, Atlantic City.

# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association May, 1934.

#### PNEUMONIA—DIFFERENTIAL TYPING AND TREATMENT

E. H. Shuller, M.D.  
McAlester

The management of this disease has always been a great problem. With the passing of time there has been some improvement in the management but science has never been able to conquer it. There is still a very large number of people who lose their lives every year as a result of it.

As in many other diseases, the specific organisms causing pneumonia have been isolated and specific serums have been produced. Because of the varied number of organisms causing pneumonia, and because horses respond to the different types of pneumococci differently, it has been impossible to produce a serum which will act specifically in all cases of pneumonia. It has been necessary to devise some means by which the organisms can be isolated and typed in each individual case before the specific serum can be given with any hope for a favorable percentage of results.

Methods of typing have been developed so that anyone who is trained to read microscopic Widal and Kahn tests can type the pneumococcus with considerable accuracy and within a very short time.

It is not necessary to say more about the advisability of using specific serums in this condition. It is very evident that marked benefit is obtained from it and, as in all other conditions where specific sera are used, the time element is a big factor. Due to the rapidity with which those tests can be made, the relatively high percentage of accuracy, and the simplicity of their technique, it is hoped that more effort will be made on the part of the physician to give the pneumonia patient the benefit of accurate specific serum therapy whenever possible.

As in the treatment of any other disease by specific therapy, the cost of the serum is a big factor, and in a large number of cases is prohibitive. It is to be hoped that the serum can be produced for a price which will make it more easily obtainable. With this, and with the development of the practical methods of typing of the pneumococcus, much can be done towards lowering the death rate of this dreaded disease.

# Deaths

CHARLES BENJAMIN TAYLOR, M.D.  
1879-1959

Charles Benjamin Taylor, 79-year-old Oklahoma City physician, died April 7.

Born in Amador City, California, Doctor Taylor attended schools there and in Michigan, later graduating from Georgetown University Medical School in 1905. He came to Indian Territory later that year, settling in Spencer.

In 1915, Doctor Taylor came to Oklahoma City to take the position of county physician. Since 1954, he has been Medical Director of the State Department of Welfare.

He had served on the faculty of the University of Oklahoma School of Medicine since 1915 and was Professor Emeritus in Urology.

Doctor Taylor was a Past-President of the Oklahoma City Academy of Medicine and was made an Honorary Member of the Oklahoma State Medical Association in recognition of his years of service to the profession. In 1949, an annual lectureship was established in his honor by the University of Oklahoma.

LUCILE SPIRE BLACHLY, M.D.  
1883-1959

Lucile Spire Blachly, retired Oklahoma City physician, died April 2, 1959.

A native of Marysville, Missouri, Doctor Blachly graduated from Chicago's Rush Medical College in 1916, beginning her practice in Drumright that same year. In 1924, she moved to Oklahoma City, serving with the State Health Department's Bureau of Maternity and Infancy until 1929.

After two years with the State Health Department of Florida, Doctor Blachly returned to Oklahoma.

In recognition of her years of service to the profession, Doctor Blachly was presented with a Life Membership by the Oklahoma State Medical Association. She was also Professor Emeritus at the University of Oklahoma School of Medicine.

D. H. FLEETWOOD, M.D.  
1903-1959

D. H. Fleetwood, M.D., Edmond physician, died in Oklahoma City on April 14.

Born in Marlow, Oklahoma in 1903, Doctor Fleetwood graduated from the University of Oklahoma School of Medicine in 1941. In 1947, Doctor Fleetwood founded the Edmond Hospital which he operated until his retirement last October.

Doctor Fleetwood was a member of the American Academy of General Practice, the Oklahoma City Clinical Society as well as his county society and the Oklahoma State Medical Association.

DAVID C. MCCALIB, M.D.  
1885-1959

David C. McCalib, M.D., pioneer Bryan County physician, died April 1 in Colbert.

A native of Arkansas, Doctor McCalib graduated from Barnes Medical College, St. Louis, in 1908. He began his practice in Yuba, Bryan county, later moving to Utica and for the last 22 years has been practicing in Colbert.

In 1947, Doctor McCalib was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with a Life Membership.

WILLIAM LEWIS MABRY, M.D.  
1880-1959

William Lewis Mabry, M.D., 78-year-old Duncan physician, died on March 28, 1959.

Born in Clarksville, Texas in 1880, Doctor Mabry graduated from the University of Nashville in 1907, beginning his practice in Valliant, Oklahoma that same year. He later practiced in Tampico, Mexico, Arizona, and Walters, Oklahoma, moving to Duncan in 1956.

In recognition of his years of valuable help to the medical profession, the Oklahoma State Medical Association presented Doctor Mabry with a Life Membership in 1950.



(Continued from Page 327)

sure requirements should be furthered through educational methods.

3. Because caring for the aged broadly encompasses social and economic problems, as well as health and safety, the cooperation of all interested agencies and groups is essential to the fulfillment of desired objectives.

In response to a mounting public awareness to the need for better and safer facilities for the care of the aged, three separate pieces of legislation have been introduced in the current State Legislature, specifically designed for more effective administration of the State Licensing Program; an effective screening method as to the fitness and ability of the proposed and existing nursing home operators; and a fire and safety measure, the intent of which, is to provide a greater degree of safety for occupants of all nursing and rest home facilities.

Additional needs which cannot be provided through legislative procedures, include:

1. An increased benefit schedule for welfare recipients housed in these facilities so that the Nursing Home will be in a better economic position to comply with higher standards of care.

2. A closer working relationship between the Nursing Home and other health facilities.

3. A closer working relationship between the Nursing Home and the medical profession to more adequately assure proper medical supervision and attention to the individual.

4. Public awareness and constructive assistance on the part of the public interest groups and agencies.

A coordinated effort embracing higher standards, alertness to new problems, and the willingness to understand and assist in overcoming these problems by all concerned, is essential to a progressive and well-balanced program for the care of the aged and chronically ill and convalescent.

## MISCELLANEOUS ADVERTISEMENTS

**FOR LEASE:** Space in new building, ideal for doctors' offices. Will lease as is, or finish to suit tenant. Located in the business center of Warr Acres with off-street parking. 5832 N.W. 41st, O. H. Elledge, WI 2-5228.

**FOR SALE:** Numerous new and used items for furnishing a medical office. Includes a consultation chair, mayo, castle sterilizer, steel clothes locker, examining table, miscellaneous instruments and laboratory glassware, X-ray apron and gloves and an oxygen regulator. Excess to my needs—in good condition. W. A. Waters, M.D., 4926 E. 21st, Tulsa.

**FOR SALE:** Two story frame physician's office building, and equipment Britton. Centrally air-conditioned, living quarters above and two rental apartments in rear, plus two adjacent lots. Contact Key D, The Journal, Oklahoma State Medical Association, P. O. Box 9696, Oklahoma City, Oklahoma.

**FOR SALE:** Jones BMR Machine, six years old, used very little. Contact A. M. Brown, Jr., M.D., Perry, Oklahoma.

**BARGAINS**—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-RaY Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.

**WANTED:** Civilian physician to serve at Air Force Hospital, Clinton-Sherman Air Force Base, Clinton, Oklahoma. Work to be essentially with outpatients. Starting salary of General Practitioner \$7,030.00. Starting salary of Specialist \$9,890.00 per year. Write to Capt. Frank H. Dailey, USAF (MC), 857th Medical Group, Clinton-Sherman Air Force Base, Clinton, Oklahoma.

1600 SQUARE FOOT physician's office and home for sale, located in Oklahoma community of 10,000. Office may be purchased separately, or both may be bought for about one year's gross income. Excellent practice opportunity at moderate cost. Write Box A, The Journal, Oklahoma State Medical Association, P. O. Box 9696, Oklahoma City, Oklahoma.



# PHYSICIAN PLACEMENT

## General Practice

Albert Stanley Bailey, Jr., M.D., P.O. Box 1381, Westhampton Beach, L. I., New York, age 28, married, graduated from University of Oklahoma, 1955, presently in military service, will be available May, 1959.

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

John W. Kennard, M.D., 20 Olson Lane, Fort Rucker, Alabama, age 26, married, graduated from Bowman Gray School of Medicine, 1956, presently in military service, will be available September, 1959.

James W. McDoniel, M.D., 13-B Thompson Street, Langley Air Force Base, Virginia, age 27, married, graduated from Oklahoma University School of Medicine, 1956, will be available July 1, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Edwin Ruben Reinschmidt, Lt., MC, USNR, BOQ, Alameda Naval Air Station, California, age 30, married, graduated from University of Oklahoma, 1956, presently in military service, will be available June 15, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

## Internal Medicine

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

## Locum Tenens

James D. Green, M.D., internal medicine resident, is seeking two weeks locum tenens in general practice during the months of May or June. Doctor Green can be contacted at St. John's Hospital in Tulsa.

B. Anthony Linn, M.D., Veterans Administration Hospital, 4500 S. Lancaster Road, Dallas 16, Texas, will finish residency in Ophthalmology in July, graduate

of the University of Oklahoma, 1956, licensed to practice in Oklahoma, would like to have a locum tenens for two weeks during the summer of 1959.

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

## Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

## Obstetrics and Gynecology

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

## Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

## Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

## General Surgery

Frank L. Lanuti, M.D., 215 S. Randall Avenue, Madison 5, Wisconsin, age 38, married, graduated from University of Illinois, 1953, board eligible in general surgery, veteran, will be available July 1, 1959.

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

## Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.

# Editorials

## **A Chance for a Stay of Execution**

We are not the owners of medicine but the stewards of it during our active life time. It was handed to us and we must pass it on. We have, therefore, a responsibility to the past and to the future. The time is now for us to interpret our place in terms of our responsibility to the past and to the future. We have no right to destroy that which we have assumed responsibility for, nor do we have any right to permit it to be so altered that its effectiveness as an instrument for human happiness and human welfare will be crippled.

There is in our hands a body of knowledge and techniques which has been largely responsible for the increase in life expectancy from 27 years at the time of Jesus to near 70 years in 1959. Part of this body of knowledge and techniques came from pure scientists who were interested in the discovery of truths, and part of it came from scientists, clinicians and other workers who were interested in methods of applying this knowledge to the prevention and treatment of disease and the alleviation of human suffering. I can find no evidence along the line of development in the past that there was ever intended a selective application to those who have and a limited one to those who have not. It is, therefore, not surprising that those who are interested in the problems themselves and in the problems of application are relatively less concerned than those interested in the application itself about threats of socialization. There is little reason to hope that those who have not will oppose a change.

We in the practice of medicine are the purveyors of this body of knowledge and techniques to the ultimate consumer, the man or woman or child in distress. We think our system of purveying is the best in the world and yet we are about to hand down to our children who will replace us as custodians a watered down panel-system of ineffective medical care by a profession in slavery—all because we cannot face up to

the problem of distribution of medical care and because we do not have the guts to remove the cloak of respectability in the form of membership in organized medicine from those who are a disgrace to the human species let alone medicine.

We have a reprieve, a stay of execution, perhaps a permanent one if the approach of the A.M.A. is suitably implemented. The beginning of such an implementation was accepted by the House of Delegates when it approved its Committee on Aging report recommending the development of a service contract for those of limited income in the over 65 age group. Within 90 days this program will be presented to a special session of the House of Delegates for ratification, modification or rejection. Some of the difficult problems that will face this committee in its work will be editorially commented on in the July issue.—*B.H.N.*

## **The Syndrome of Cerebral Dysfunction**

This term is suggested by Denhoff<sup>1</sup> as a replacement for the old terms "brain-damaged" or "brain injured." A change in name may mean a tremendous change in concept. Consider a biffy and a powder room—a road and an expressway—ductless glands and the endocrine system—stokers' cramps and water intoxication—recovery and rehabilitation. The terms "brain damaged" or "brain injured" imply hopelessness, overt change in anatomical appearance of the brain and active participation on the part of the obstetrician if present from birth. The term cerebral dysfunction does not imply hopelessness, blames no one and includes subtle changes reflected in behavior that may previously have been attributed to a host of environmental factors including lack of parental love, sibling jealousy, over-indulgence, broken homes, lack of teacher understanding and various types of emotional trauma. A study and understanding of the child handicapped by cerebral dysfunction offers much for the adults of tomorrow.

1. Page 360.



## ***The Evaluation of the Practice of Internal Medicine***

Obvious progress has been made in the measurement of the quality of surgical practice compared to the backward position of internal medicine in this respect. Eisele, et al<sup>1</sup> have listed certain features of the problem which partially explain the difference.

1. First, tissue reports, when properly handled and interpreted, serve as an objective measure of surgical practice. The now-required tissue committee utilizes this fact. Parallels in internal medicine are limited.

2. Second, in surgery the approach of choice is the evaluation of groups of cases which received the same operative procedure. In medicine, in contrast, it seems necessary to evaluate disease categories. These may be much more difficult to define.

3. Third, surgical practice concentrates itself into a relatively small number of common operations, whereas medical practice distributes itself over a comparatively wide range of common ailments.

4. Fourth, the very nature of medical practice predisposes to an emphasis on many intangible but vitally important facets of good medical care which are elusive and difficult to define, much less to measure—such facets as patient-physician rapport, and the recognition of the interplay between the psyche and the soma, of sociologic and environmental influences, and of the concept of disease as affecting the whole man.

That the problem of evaluation of quality in internal medicine is by no means hopeless, is illustrated by two studies.

The study by Eisele, et al<sup>1</sup> was done under the auspices of the Southwestern Michigan Council under a grant from the W. K. Kellogg Foundation. The method used was to have the medical record librarian in each hospital complete a code sheet on each patient. This was sent to the study headquarters for analysis. The research project was designed to determine specific indexes re-

lated to medical practice in hospitals and to assist medical staffs in the study of clinical record data, in order to make possible the improvement of medical practice.

Two examples of the results in that survey indicate the usefulness of the technique. The percentage of patients with diabetes in each of 15 hospitals who did NOT have blood sugar determinations at any time during their hospital stay was tabulated. The range of patients with diabetes NOT having blood sugar determinations at any time was from 5% in one hospital to 55% in another. The report submitted "that if a patient with diabetes is sick enough to be hospitalized for any reason, good medical practice calls for at least one blood sugar determination so that the physician may be satisfied that the diabetes is remaining under control." It was also noted that the physicians who were doing blood sugars on practically every diabetic admission were also treating the largest number of diabetic patients.

It would seem to be elementary that if a patient with an acute lower respiratory infection were ill enough to require hospitalization, an initial diagnostic chest x-ray film would be mandatory. An examination of practice, however, shows that this reasoning was not always followed. The percentage of patients with pneumonia who had chest x-rays varied from 95% in one hospital to 45% in another. After the figures were presented to the medical staff of one hospital, the percentage with chest x-rays rose significantly during the succeeding six months.

The other study was performed under the auspices of the American College of Physicians.<sup>2</sup> The plan was entirely different but the results strikingly similar. Experienced internists acted as surveyors. Each visited five hospitals. These men interviewed the responsible physicians, inspected the equipment, and with the aid of the record librarian, surveyed 20 hospital charts chosen at random. The information was coded and summarized by the director of the survey. There was good correlation between the surveyors' evaluations of a hospital and a punch card analysis of the hospital records.



Certain specific items in this survey may be cited to illustrate significant information gathered. For example, less than  $\frac{1}{3}$  of the women had pelvic examinations. Almost half of the patients with strokes did not have retinoscopy; and of the young patients with strokes, less than  $\frac{1}{3}$  had skull films.

The director of this survey summarized as follows:

1. That the study of enough records by an expert will reveal good or bad medical care quantitatively in a given hospital.

2. That examination of the staff organization and its activities will reveal how a particular grade of practice is accomplished.

3. That to maintain good practice, practice of high standards, an inside audit is the most favored in particular reference to hospital deaths.

A continuation of the American College of Physicians study revealed that an internal appraisal system was important in maintaining and elevating the quality of medical

care.<sup>3</sup> The Director of this study has developed a Medical Care Appraisal Plan that is now ready for trial.

The conscientious physician is the first to declare that there is room for improvement in the practice of medicine. He recognizes that this has always been true and always will be true. The methods in these studies do provide an evaluation of the practice of medicine. They are sufficiently cheap and simple to be practical. The approaches outlined are valuable to any medical staff, no matter how limited its time and resources, since it enlists the aid of non-professional help. The physician is then free to concentrate on applying the information for the improvement of his practice.—J.F.H.

#### REFERENCES

1. Eisele, C. Wesley, Slee, Vergil N., and Hoffman, Robert G. Can the Practice of Internal Medicine be Evaluated. *Annals of Internal Medicine*, 44: 144-161, 1956.
2. Blankenhorn, Marion A. Standards of Practice of Internal Medicine and Methods of Assessing the Quality of Practices in Hospitals (editorial). *Annals of Internal Medicine*, 47: 367-374, 1957.
3. Fenn, G. Karl. Progress Report: Committee for the Study of Hospital Standards in Medicine (editorial). *Annals of Internal Medicine*, 49: 959-965, 1958.

---

BABE or BABY, *n.* A misshapen creature of no particular age, sex, or condition, chiefly remarkable for the violence of the sympathies and antipathies it excites in others, itself without sentiment or emotion. There have been famous babes; for example little Moses, from whose adventure in the bulrushes the Egyptian hierophants of seven centuries before doubtless derived their idle tale of the child Osiris being preserved on a floating lotus leaf.

Ere babes were invented  
The girls were contented.  
Now man is tormented  
Until to buy babes he has squandered  
His money. And so I have pondered  
This thing, and thought may be  
'T were better that Baby  
The first had been eagled or condored.  
Ro Amil

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

## Transurethral Resection of Non-Infiltrating Carcinoma of the Bladder

The author prefers this procedure  
to removal of the bladder and  
transplantation of the ureters.

THE TUMOR referred to in the title may be further described as the so-called "spirea bush" type of tumor, a papillary growth with a pedicle which is clear cut and not visibly infiltrating the bladder. To those of us, who, before the coming of the resectoscope, repeatedly fulgurated these tumors until they possibly were burned down to the base, this instrument was indeed a revelation. With it one could remove the entire tumor down to the level of the floor of the bladder, usually with quickness and dispatch in most cases. I believe it is better to remove the whole tumor at one sitting, rather than do a biopsy and remove the tumor later. Fulguration is used only to stop bleeding and to sear the entire area of operation at the finish.

Since 1934, I have removed all bladder tumors by transurethral resection, 177 cases in all. Of course, in the infiltrating tumors, there is hardly any hope of cure, but life is prolonged and made more bearable in most of these patients.

In those early years, I had a number of five-year cures, which was quite satisfactory, so that when transplantation of the ureters and total cystectomy was the vogue in the late 1940's, I did not do any of these operations, thinking that if a carcinoma of the bladder could not be removed completely by transurethral resection, it could not

HENRY S. BROWNE, M.D.

Since graduating from Tulane University School of Medicine, Henry S. Browne, M.D., has been certified by the American Board of Urology. Doctor Browne is a member of the American Urological Association, the American College of Surgeons and the Southwestern Surgical Congress.

Doctor Browne is Past-President of the Tulsa County Medical Society and held the same position with the South Central Section of the Urological Association.

This paper was presented before the Oklahoma Urological Society, May 18th, 1959, in Tulsa.

be removed completely at all. I thought that if one subjected a patient to such a radical surgical procedure, one should almost be able to guarantee a cure, which could not be done.

In removing the above classified tumors, if the pedicle can be seen, the resection is carried out systematically, beginning on one side and going across the tumor until it is completely removed. Then the base of the growth is resected until healthy muscle is seen. The dissection is carried deeply if necessary, even through the bladder wall until the smooth pearly perivesical tissue is seen. This is entirely different tissue from the bladder muscle. It is pearly white and

when fulgurated no bubbles appear, while the bladder muscle is reddish, with circular parallel fibers which give off many bubbles when fulgurated. At the finish the whole area, including 5 cm. of healthy bladder mucosa, is thoroughly fulgurated with a roller electrode. After the catheter is put in, 4 ounces of 1% phenol is injected into the bladder and left in for half an hour, on the theory that this will destroy any loose cancer cells which could later cause transplants.

There are definite advantages in removing bladder tumors by this method over an open operation. The tumor can be seen much better, due to magnification through the cystoscope, bleeding points can be accurately fulgurated, and the healthy bladder mucosa and musculature outlined clearly. The resection is carried out well into the healthy-looking tissue.

The ureteral orifice is frequently involved and is ignored, so that often a preoperative excretory urogram which will show a dilated ureter, if repeated after operation, is found to be normal, due to the removal of the tumor blocking the drainage of urine from the kidney. In subsequent cystoscopies, the ureteral orifice will often be seen as an oval hole. Obstruction for a long period of time will result in destruction of the kidney. Tumors at the top of the bladder are difficult to reach, and their removal is greatly aided by having an assistant press down on the bladder wall as suggested by Gershom Thompson.

Postoperative care is similar to that in transurethral prostatectomy. If the resection has been carried through the bladder wall, the catheter is left in for a week. Urinary antiseptics are given routinely. Following operation, burning, frequency and dysuria are greatly relieved. In the follow-up, cystoscopy is done every three months for the first year and every six months thereafter, if possible. The bladder is found well healed with little scar, except in those patients where the resection was carried extra deeply.

Of sixty-seven cases of carcinoma of the bladder operated on by transurethral re-

section from January, 1947, to December, 1957, forty-one were excluded from this study because they were infiltrating, leaving twenty-six which were papillary and non-infiltrating. A questionnaire was sent out to these patients, and twenty of them were returned:

one patient was in good health for two years and then lost track of;

one had six resections and died in three years;

one died six days postoperatively of heart disease;

one woman, age 80, died three years later of intercurrent disease;

one man with multiple tumors died in a year from recurrence;

one committed suicide three months after operation;

one patient has had recurrent multiple tumors operated on eight times since 1955;

and one similar patient has been operated on five times since 1955;

one lived three years, and died of a heart attack;

one, age 77, died four years later of carcinoma of the prostate.

This leaves seven patients who were living and well five years or more; two for four years; one for three years; one for two years and one for one year. Fifteen of these carcinomas were grade two, and eleven were grade three. Forty-seven grams was the most tissue removed from any one patient, one of the six with no answer to the questionnaire. Of the five year cases, seven were alive and well, and three died of cancer. The others were not heard from.

From this small series of cases plus previous experience, I believe that non infiltrating carcinomas of the bladder can be treated more successfully by transurethral resection than by any other method, with less morbidity and mortality, and with the greatest benefit to the patient.

Medical Arts Building, Tulsa, Oklahoma



## THE SYNDROMES OF CEREBRAL DYSFUNCTION

**O**BSTETRIC and pediatric advances have made it possible today for some children to be living who not so many years ago either would have not been born or would have died in early life. Many of these children, who have been salvaged from an intra-uterine or neonatal death, have cerebral palsy, mental deficiency, or epilepsy. Others appear normal but may have sensory or behavioral disturbances. Fifteen years ago, a premature infant had a high chance of a consequent handicap. Today, the sequelae of prematurity are less likely. Ten years ago, a baby with a severe Rh blood incompatibility would have been dead at delivery or shortly thereafter. Now, most of these babies, by immediate complete blood transfusions, develop normally.

However, there is still much to be learned about preventive pediatrics as is noted in the increasing numbers of stressed infants surviving with congenital heart disease, congenital deafness and blindness, cleft palate, hare lip, tracheoesophageal fistula, hydrocephaly, spina bifida, meningocele, kidney anomalies and gastro-intestinal abnormalities. These congenital (prenatal) disturbances stem from intra-uterine infection and anoxia during the early weeks of pregnancy. They are "stage-specific" defects in tissue differentiation. Since they evolve during a period when the brain is undifferentiated and particularly susceptible to oxygen lack, it would seem unlikely that the nervous sys-

**ERIC DENHOFF, M.D.**

**MAURICE W. LAUFER, M.D.**

**RAYMOND H. HOLDEN, M.A.**

Eric Denhoff, M.D., graduated from the University of Vermont Medical School in 1938. He is a Diplomate of the National Board of Medical Examiners and of the American Board of Pediatrics, a Fellow of the American Academy of Pediatrics and of the American Academy of Cerebral Palsy in addition to being a member of several other national organizations.

Doctor Denhoff is Medical Director of the Meeting Street School for Handicapped Children, Providence, Rhode Island and a member of the Institute for Research in Health Science, Brown University.

Maurice W. Laufer, M.D., graduated from Long Island College of Medicine in 1939. He is certified by the American Board of Pediatrics, the American Board of Qualifications in Electroencephalography, and the American Board of Psychiatry and Neurology.

Doctor Laufer is Director of the Emma Pendleton Bradley Hospital, Riverside, Rhode Island and a member of the Institute for Research in Health Science, at Brown University, Providence, Rhode Island.

This paper was presented at the Oklahoma Conference on Handicapped Child, Oklahoma City, March 12, 1959.

Raymond H. Holden, M.A., is a Psychologist at the Meeting Street School, Children's Rehabilitation Center, Providence, Rhode Island.

tem should escape the adverse effects of anoxia.

Examples of neurological deficit in children with primarily non-neurological handicaps are seen frequently in clinical practice. A child with pulmonary stenosis may have increasingly poor balance, and be unable to keep up with other children. In school, the teacher may report that he is unable to concentrate and that he has a short attention span. It is usual to blame these complaints on the heart disease, i.e., a resultant exhaustion from poor tissue oxygenation. However, an electroencephalogram may reveal generalized or localized cerebral dysrhythmia consistent with a mild degree of brain damage. A child with cleft palate and hare lip may be hyperactive and have mood changes. He writes clumsily. A detailed neurological examination reveals but slight hyperactive deep reflexes and poor finger-to-nose coordination. However, psychological tests suggest brain damage.

Such findings do not occur in every case of cleft palate or congenital heart disease. Nevertheless, they occur often enough to suggest that children with non-neurologic congenital disorders often have concomitant central nervous system dysfunction.

### Cerebral Dysfunction

Currently, when a child demonstrates neurological disability, he is designated as "brain injured" or "brain damaged." Anoxia, infection, and/or trauma before, during, or after birth are responsible for the largest number of children that are so handicapped. These children may demonstrate a variety of neuro-motor, mental, sensory, and behavioral findings singly or in combinations and varying in degree. In these cases, aberrant behavior is of a special type; intelligence may vary from superior to low, and neurological findings may also vary from minimal to severely abnormal.

The phrase "Syndromes of Cerebral Dysfunction" is suggested as a term to replace phrases such as "The Brain Injured Child" or the "Brain Damaged Child." The individual clinical syndromes which make up the Syndromes of Cerebral Dysfunction are cerebral palsy, mental retardation, epilepsy, and the hyperkinetic behavior disorder. Childhood schizophrenia may possibly be included. A variety of sensory disturbances

are usually found associated with these major disabilities, or may be found independently.

Cerebral injury, maldevelopment, delayed maturation (and even intense emotional stress) can result in disturbances of nervous system function. There are six major categories of dysfunction and various combinations of these, depending on what areas of the brain are involved that can be found in any child with the clinical conditions mentioned.

These are:

- (1) *Neuromotor*—this refers to the varieties of cerebral palsy.
- (2) *Intellectual*—this refers to intellectual subnormality due to brain injury or other organic causes.
- (3) *Distortions of Consciousness*—this refers to varieties of convulsive disorder.
- (4) *Neurosensory*—this refers to impairment of vision or hearing on a neurological basis.
- (5) *Behavioral*—this refers to a particular syndrome which has been characterized as "Hyperkinetic Impulse Disorder."
- (6) *Perceptual*—this refers to difficulties in perception through any modality as a result of any of the factors mentioned above, and to consequent difficulties in learning and establishment of relationships. (Table I.)

Clinically, a child may be called "cerebral palsy" if in his case the neuromotor aspect dominates the total picture. He will be called "mentally retarded, organic type" if primarily his intelligence is impaired; or "epileptic" if convulsions are outstanding; or a "blind," a "deaf," a "speech" or a "behavior" problem depending upon the outstanding symptoms.

Thus, the names of the clinical syndromes portray which symptom-sign component dominates the overall picture in a particular child.

The realization for the need of a descrip-

(Injury, maldevelopment, and delayed maturation of the brain, and even intense emotional stress, can cause various disturbances listed, or any mixtures of them.)

DYSFUNCTION	CLINICAL DIAGNOSIS	DESCRIPTION
NEUROMOTOR	Cerebral palsy; various types	Gross and fine neuromuscular incoordination.
INTELLECTUAL	Mental Retardation, organic	Subnormal reasoning and learning abilities.
CONSCIOUSNESS	Convulsive Disorders	Cortical and/or subcortical electro-rhythmical instability with resultant distortions of consciousness.
NEUROSENSORY	Sensory Disorders	Vision and hearing impairments of neurologic origin.
BEHAVIORAL	Hyperkinetic Behavior Disorder. ? Childhood	Short attention span, distractibility mood swing perseveration
PERCEPTUAL	Schizophrenia Perceptual Disorders	Withdrawal from environment. Visual-motor, tactile or auditory distortions contributing to learning difficulties and establishment of relationships.

TABLE I

tive term which emphasizes function as well as pathology in children with neurological handicaps has evolved over a twenty-five year period. Amongst the reasons for the recognition that the total behavior in these children is not static are:

1) The unpredictable, favorable, medical, educational, and social adjustments of children diagnosed as "brain damaged" and presumably of limited potential.

2) Poor correlation between neurological symptoms during life and neuropathological findings at death.

3) Growing evidence to indicate that neurologic disability is reversible in cases where chemical enzymatic factors are responsible for brain damage, if deficiencies are corrected in early life.

4) Recent neurophysiological evidence which shows that total behavior can be influenced through stimulation of neutral pathways which interweave various parts of the cortical sensory and motor systems with the brain stem and cerebellum.

5) A practical realization that new terms are needed to express a child's abilities and disabilities if favorable doctor-parent-therapist relationships are to be attained.

#### Development of the Concept

At the Emma Pendleton Bradley Hospital, a neuropsychiatric hospital for children, and at the Meeting Street School for handicapped children in Providence, Rhode Island, there has been interest in the problems of childhood behavior as related to brain damage or dysfunction over a twenty-five year period. Bradley<sup>1</sup> was amongst the first to describe an "organic syndrome" of behavior. He observed that an outstanding group of characteristics of behavior associated with brain damage were hyperactivity, short attention span, irritability, and mood changes. Some years later, he correlated some anoxic-producing disorders of birth and infancy with the special type of behavior previously described.<sup>2</sup> These behavior characteristics, which are now called the "hyperkinetic behavior syndrome" were found in a large number of children who as infants had whooping cough, meningo-encephalitis or pneumonia. Other children were asphyxiated at birth for a variety of reasons.

Since Bradley's initial observations, a rapid increase in the number of cases of behavior problems associated with physical and non-physical handicaps have been observed. There appears to be a correlation with the obstetric-pediatric salvage rate.



Our experiences, in continuing work at the Bradley Hospital and Meeting Street School<sup>3</sup> have suggested that there may be a very marked lack of correlation between degree of central nervous system involvement as suggested by methods of study in ordinary use, the degree of impairment of function and of satisfactory performance. The behavioral and learning aspects may far outweigh the more commonly accepted neurological components. This is easily seen in epilepsy in children. Not infrequently, the seizure episodes can be controlled, but the child's specific behavioral and learning handicaps continue to affect his total adjustment.<sup>4</sup>

Such continued experiences with children of normal intelligence or subnormal mentality, with or without the various sensory-motor handicaps, led us to consolidate Bradley's observations and formulate a dynamic concept of disordered behavior which was called the Hyperkinetic Behavior Syndrome. The essential symptoms of the Syndrome are hyperactivity, short attention span and poor concentration, variability, impulsiveness and inability to delay gratification, irritability, explosiveness, and poor school work (especially arithmetic, reading and handwriting). More recent studies have indicated that dysfunction of the visual-motor system, which results in a perceptual disorder, may be responsible in some measure for reading and writing problems. Such behavioral and perceptual disabilities in early life often lead to emotional disturbances in the child and his family. Ultimately, it is the disturbed intra-family relations and distorted feeling and not the organic disability which causes the eventual inadequate adjustment of the adolescent or adult.

### New Methods of Diagnosis

*Psychological Tests:* A standard diagnostic method in cerebral dysfunction is the use of psychological test batteries which evaluate the child's conceptual and perceptual ability, as well as his intelligence and emotional status. A number of psychologists have recognized the unreliability of test results in brain-damaged children. Various adjustments of standard procedures are suggested to meet the individual's need. Table

2 outlines the suggested approach to the diagnosis of visual-motor performance difficulties.

*Electroencephalography:* Through new neurophysiological experimentations, we are

AGE	TEST	PATTERN
Above year 8	WISC.†	Performance IQ 10 points lower than verbal IQ
Year 7-8	S.B.†*	Vocabulary passed at year 8. Diamond failed by distortion.
Year 5-6	S.B.	Vocabulary passed at year 6. Square failed at year 5.
Year 2-3	S.B.	Picture vocabulary passed at year 2½. Formboard failed at year 2.
†Wechsler Intelligence Scale for Children		
*Stanford-Binet, Form L		

TABLE II

Suggestive Psychological test diagnosis of visual-motor performance difficulty. (Holden, R. H. Meeting Street School, Providence, R.I. unpublished data.)

more able to decide whether a behavior problem is the result of organic factors or environmental factors.

The ordinary electroencephalogram, frequently described as "borderline abnormal" in children with hyperkinesis, portrays only superficial cortico-electrical activity.

*Gestalt Photo-Metrazol Test:* A new electroencephalogram procedure, the Gestalt Photo-Metrazol test,<sup>5</sup> provides a method which explores, deeper than an ordinary electroencephalogram, the functioning of the brain by testing the activity of the diencephalon and its relation to the cortex. Recent neurophysiologic studies involve structures deep in the cortex, the diencephalon and especially the thalamus, as important mediators in the control of behavior in all children.<sup>6,7,8</sup> The diencephalon may serve as a first stage sorting, routing, and patterning mechanism for impulses coming in from sensory receptors to higher level cortical centers. It is postulated that damage to this important mid-brain structure in some way alters its function. If affects the interplay between the cortex and diencephalon, and in some way exposes the cortex to undue stimulation.

When a measured amount of metrazol is

given intravenously to a child who is simultaneously being exposed to the flickering of a standard stroboscopic light, while an electroencephalogram is being recorded, a photometrazol threshold is obtained. One which is lower than normal suggests damage to or dysfunction of the diencephalon.

This procedure was used experimentally in children with behavior disorders in a search for those with positive evidence of diencephalic disturbance.<sup>9</sup> A group of children with the Syndromes of Cerebral Dysfunction and a group of children with environmental causes for aberrant behavior were selected. The results showed that the cerebral dysfunction group had a significantly lower photometrazol threshold than the non-organic group. Whereas the normal threshold was 6.5 mg. per kilogram, the mean threshold for the cerebral dysfunction group was 4.3 mg. per kilogram, a significantly lower value.

These results justify the suspicion that diencephalic dysfunction is associated with hyperkinetic behavior.

#### *Sensory Testing:*

Tests which evaluate psycho-sensory or perceptual ability are important aids in estimating a child's potential ability. Learning difficulties in children may in some cases result from unrecognized dysfunction of parts of the brain which results in disturbances of tactile or spatial discrimination, reproduction of special arrangements, or right or left disorientation.

#### *Tactual Discrimination:*

Tactual discrimination tests in fifty children with cerebral dysfunction and 130 normal subjects suggests that diminished sensation itself did not apparently present a problem to the brain damaged child. Nevertheless, normal children seem in every way superior to the dysfunctioning subjects in discriminating size, texture, and form. Amongst the cerebral dysfunction group, non-physically handicapped were superior in each item tested to the physically handicapped.<sup>10</sup>

#### *Form Board Perception:*

A very practical series of perceptual tests

involving increasing complicated puzzle form boards were worked out at Meeting Street School. The boards are matched against chronological age and vary from a four-piece geometric pattern, with and without color matching, to a complicated twenty-piece pattern which is complicated by pieces needing to be placed in the pattern at an angle. Studies, over the past three years, have uniformly resulted in discovering that many apparently normal children with school difficulties are below their proper age placement in puzzle performance. Psychological, visual perceptual, and electroencephalographic tests results almost invariably correlate and indicate the presence of cerebral dysfunction.

#### *Visual Perceptual Testing:*

It is generally accepted that the standard ophthalmological examination reveals relatively little pathology in cerebral dysfunction, unless the peripheral visual apparatus is involved. There are available functional tests of visual perceptual ability which include measurements of ocular motility, fixation, conveyance and accommodation relationship, eye and hand dominance, binocular fusion, and span and speed of perception. Preliminary studies suggest that these factors are aberrant in some children with cerebral dysfunction, and a battery of these tests done by properly qualified persons may be of diagnostic value in children with "hidden disabilities." Table 3 and Table 4.

#### *Archimedes Spiral After-effect:*

Cerebral palsied children of the spastic type frequently report distorted or absent after-image effects when an archimedes

DIAGNOSIS	No. Cases	Visual-Motor Perceptual Performance	
		Percent Abnormal	Percent Normal
C. Palsy, Spastic	16	93	6
C. Palsy, Ataxia	2	—	100
Hyperkinetic Behavior	9	77	22
Epilepsy	2	—	100
Mental Deficiency	1	—	100
Anxiety Neurosis	11	—	100
TOTAL CASES	40		

TABLE III

Visual motor perceptual performance in Syndromes of Cerebral Dysfunction.



Visual-Motor Perceptual Disturbances	No. Cases	Abnormal Vis.-Motor Perception Percent	Normal Vis.-Motor Perception Percent
Hand-eye incoordination	6	100	—
Form perception difficulty	12	66	34
Ocular motility	11	81	19
Gross reversal difficulty	3	100	—
Suppression	7	85	15
Strabismus	7	85	15
Crossed Dominance	15	54	46

TABLE IV

Type and incidence of visual-motor perceptual disturbances in children with visual-motor perceptual performance difficulty.

spiral, rotating at high speed, is abruptly stopped.<sup>11</sup> When such a test is administered to emotionally disturbed children without evidence of cortical damage and to a group of normal children, they report perceiving either an effect of contraction or expansion, depending upon the effect of the spiral during rotation. When the rotation is abruptly stopped a visual negative after-image effect is briefly seen. If previously the spiral seemed to be expanding, it now appears to contract, or vice-versa.

The reason given for the variances which brain damaged children report, is the poor ability of the visual cortex to polarize and depolarize nerve impulses from visual stimuli. This may result in one percept distorting another, or difficulty in shifting from one percept to another. It is believed that such phenomena contribute to the perceptual, learning, and reading difficulties of brain injured children. (Table 5.)

### Discussion

Problems involving dysfunction of the nervous system in childhood are increasing in frequency. Treatment directed only to the correction of the physical defect without including treatment for the behavior, perceptual or emotional factors may result in salvageable infants becoming unsalvageable adults. Mental retardation, if present, is the greatest handicap to rehabilitation of these children. However, it frequently improves when motor, sensory, and behavioral factors are corrected. With a mild to moderate physical handicap, an emotionally well adjusted handicapped child can function intellectually at a higher level than can an

GROUP	Test Results*	
	MEAN	VARIANCE
CEREBRAL PALSY	1.4	1.9
EMOTIONAL DISTURBANCE	4.5	5.3
NORMAL	5.5	5.1

\*—A perfect score, that is perceiving the after-effect with each of six trials would be 6.0.

TABLE V

Results of Archimedes Spiral After-effect in Children  
(from Davids, A. et al: J. Consult Psychology  
21:429—1957).

anxious and fearful child of comparable physical status.

The evidence is good that the dysfunctioning diencephalon in children with cerebral palsy and related syndromes can be favorably affected by drugs and maturation. This evidence suggests that these children, in addition to neuro-motor or sensory disability, the result of brain damage localized or generalized, may also suffer in part from a functional disturbance which can be favorably affected by proper understanding and treatment. Thus, a view to which many workers in the field are coming is that the child with cerebral palsy and related disorders can be successfully treated when consideration is given to the sensory and emotional factors, as well as the neuromotor responses. Motivation and redirection of both is a pre-requisite of adequate treatment. Since the terms "brain damaged child" or "brain injured child" connote permanent disability, it is suggested that these terms be replaced by the term "Syndromes of Cerebral Dysfunction." Such a change will also help parents accept a treatment program which can be long and discouraging.

Pediatricians must be prepared to give service to the ever increasing load of children with subtle handicaps associated with neurological disorders. These may appear as related to learning disabilities and perceptual difficulties (often found in children without overt physical disability and of normal intelligence). Many of these children are called "behavior problems." As little as two years ago, these problems were blamed on poor parent handling; now we are finding that some of these children are inadequate neurologically or show signs of cerebral dysfunction. Often they are minimally dam-



aged children. Much of their aberrant behavior has a physical as well as emotional basis and is treatable medically and educationally.

### Summary

A group of children with a variety of neuromotor, mental, sensory, and behavioral findings, singly or in combination, and varying in degree, with similar causative factors in the history have in common characteristics which can be described as cerebral dysfunction. There is evidence to suggest that the clinical disturbances are due to diencephalic dysfunction, as well as cortical damage. Failure to recognize the importance of treating the total problem of the child's handicap will result in therapeutic failure. It is suggested that the term "Syndromes of Cerebral Dysfunction" replace the terms "brain damaged" or "brain injured child."

### BIBLIOGRAPHY

1. Bradley, C.: The Behavior of Children Receiving Benz-drine, *Am. J. Psychiatry*, 94: 577-584 (Nov.) 1937.
2. Rosenfeld, G. B. and Bradley, C.: Childhood Sequellae of Asphyxia in Infancy. *Pediatrics* 2: 74-84 1948.
3. Laufer, M. W. and Denhoff, E.: Hyperkinetic Behavior Syndrome in Children. *J. Pediatrics*, 50: 466-474 (April) 1957.
4. Gastaut, H.: Combined Photic and Metrazol Activation of the Brain—*EEG Clin. Neurophysiol.* 2: 249-261 1950.
5. Lindsley, D. B. and Henry, C. E.: The Effects of Drugs on Behavior and the Electroencephalograms of Children with Behavior Disorders, *Psychosom. Med.* 4: 140-149 (April) 1942.
6. Magoun, H. W.: An Ascending Reticular Activating System in the Brain Stem, *Arch. Neurol. and Psychiat.* 67: 145 ( ) 1952.
7. Jasper, H. W., et al: Corticofugal Projections to the Brain Stem, *Arch. Neurol. and Psychiat.* 67: 155-156 (R) 1952.
8. Brazier, M. A. B. Personal Communication.
9. Laufer, M. W., Denhoff, E. and Rubin, E. Z.: Photo Metrazol Activation in Children, *EEG and Clin. Neurophysiol.* 6: 1-8 (Feb.) 1954.
10. Solomons, H. C.: A Developmental Study of Tactual Perception in Normal and Brain Injured Children, Thesis for M. A. Psychology, Boston Univ. 1956.
11. Laufer, A., and Davids, A.: Diagnosis of Brain Damage by Archimedes Spiral After-effect, Presented at the Am. Ac. Cerebral Palsy, Sept. 28, 1958.

Eric Denhoff, M.D.

Meeting Street School, Providence, Rhode Island

ABSTAINER, *n.* A weak person who yields to the temptation of denying himself a pleasure. A total abstainer is one who abstains from everything but abstention, and especially from inactivity in the affairs of others.

Said a man to a crapulent youth: "I thought  
You a total abstainer, my son."  
"So I am, so I am," said the scapegrace caught—  
"But not, sir, a bigoted one."

G. J.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

# AN AGE-OLD PROBLEM\*

GUNNAR GUNDERSEN, M.D.

President of the American Medical Association

ONE-SIDED or unreasoning criticism is a rather common fault among Americans today. Some people never form any other than first impressions and form vigorous prejudices on little or no factual knowledge. And the butt of their criticism is often something vague and impersonal.

Perhaps the greatest number of unfounded criticisms and twisted misconceptions is directed at such groups and organizations as the federal government, lawmakers, scientists, lawyers, military leaders . . . and doctors. Yes, American medicine cannot escape the censure of those who have very little understanding of what it is or what it does, but nevertheless must criticize.

One of the more common remarks you might hear about the American Medical Association is that it is "against everything."

The other day I heard a man ask: "Why is the AMA never *for* anything?"

To such critics I will reply that we certainly do oppose any measure or action that might impair the freedom or rights of our nation, our profession, or of the individual citizens.

Because the structures of our government and our society are so ideally suited to the flourishing of scientific progress, we are naturally anxious to keep them that way.

But rather than refute individual criticisms, I would prefer to point out that the instances in which the AMA has provided positive encouragement and leadership are far more numerous than those in which it has taken an opposing stand.

For example, during the recent outbreak of Asian Flu, the AMA undertook a public education campaign, urging that the disease be fought by immunization. We have also informed the public and medical profession of the importance of polio vaccine and rec-

ommended its use by all Americans.

Other areas in which the AMA has stimulated positive action include medical education to meet the needs of our growing population . . . fluoridation to protect our children's teeth . . . the Hill-Burton hospital construction program . . . our seat belt campaign for better traffic safety . . . sound nutrition through our food faddism program . . . and most important, a farsighted, workable program to provide health care for the aged.

Perhaps the most insistent challenge before American medicine today is to provide a workable, realistic plan to help old people finance health care. This is a problem we have been expecting for many years, since in a sense, it is the ironic result of medical progress. Better health care in youth and middle age is responsible for more people living longer than in the past.

I think that modern medicine has the obligation of doing something about the problems it has helped to bring into existence. To illustrate what I mean, let's look for just a moment at some figures:

In 1949, life expectancy of Americans was 65 years. Today it has jumped into the lower 70s. Right now there are 15 million Americans over 65, or one out of every 11 persons. By 1970, the proportion will be one out of every 10.

This means there are quite a few old people, all of whom have individual needs and requirements, particularly for their general well being. We could not hope to wrap up all the problems of the aged under the category of medical care. No, to lead healthy and comfortable lives, care for the aged must take into consideration many factors, including social, economic and occupational.

Old people have an overwhelming social problem of adjusting to a society which has deified youth. They also are faced with making ends meet on considerably reduced

\*Presented before the House of Delegates at the 53rd Annual Meeting of the Oklahoma State Medical Association, April 19, 1959, Tulsa.

incomes after they have been forced out of work because they have arrived at an arbitrarily determined retirement age.

Another reason why, as doctors, we must concern ourselves with providing health care for the aged is that if we do not, the federal government will.

We are not alone in our desire to do something for the rapidly increasing numbers of old people in the United States. For the last several years, there has been an increase of Congressional interest in medical matters.

The problems of aging have stimulated one particular bill in Congress which American medicine regards as dangerous. I refer to the Forand Bill, a measure which would provide certain hospital, surgical, nursing home and dental benefits to most Social Security beneficiaries.

Therefore, we have two outstanding reasons to be concerned with providing health care for the aged: (1) medicine is responsible for lengthening man's lifespan, and (2) we must act positively to set our program into motion before the federal government steps in.

Because this aging problem has been long-expected, the AMA has not been twiddling its thumbs. A program has been carefully developed over the years, designed to offer effective health care financing to our senior citizens.

The primary quality of the AMA plan is that it is steeped in the concept of *voluntary* action on the part of the individual. There is no compulsion, no financial burden on others, no reliance on tax funds. Our plan enables each person to provide in advance for health expenses in his twilight years.

To bring this plan into being, several significant steps have been taken.

1. Last December the AMA House of Delegates adopted a proposal which applies specifically to the population group over 65 with modest resources or low family income. For medical services rendered to this particular group, physicians are urged to accept a level of compensation that will permit the development of insurance and prepayment plans at reduced premium rates.

Since this policy was stated, there have been widespread expressions of support from members of Congress, from the health insurance industry, from newspapers and from many other sources.

2. State and local medical societies now are implementing this program on their own levels. So far, several societies have endorsed the AMA action, and the matter is being given top priority on the agendas of state groups at their annual meetings this spring.

3. The AMA House of Delegates has expressed opposition to arbitrary retirement based on chronological age. While retirement is a long-awaited blessing for many of our senior citizens, we feel it should be *voluntary*, based on the desires and capabilities of the individual. There certainly are many people over 65 who have not only the desire and the ability, but also the urgent need to continue working.

Our Committee on Aging has called on industry and labor leaders to re-evaluate *compulsory* retirement policies. The AMA feels that isolation and forced inactivity are unfair to our senior citizens, and cannot be tolerated in a society which places a premium on individual worth and ability.

Also, job discrimination against those who are no longer young is a scar on the face of our society. We as doctors know that oftentimes a man of 40 or older is in as good physical condition as a man of 30. And the older man has the advantage of additional maturity and experience.

4. We are working closely with both health and commercial insurance organizations to encourage the development of new insurance programs which offer more desirable coverage to persons over 65. Commercial firms already have introduced guaranteed renewable contracts, "paid-up-at-65" and "65-plus" policies.

At the AMA's suggestion, the Health Insurance Association of America has asked its member companies to provide policies renewable for life . . . coverage for those *now* over 65 . . . coverages that will continue after retirement . . . and the opportunity of policy holders to convert from



group to individual policies when employment terminates.

Developments in the insurance field are moving at a rapid pace. The health Insurance Institute of America estimates that 60 per cent of our senior citizens will have protection by the end of next year. That figure will rise to 75 per cent in 1965 and 90 per cent by 1970. Actual growth, however, may exceed these conservative estimates if the medical profession continues to act with speed and imagination.

5. The AMA has pointed out the urgent need for facilities designed specifically to meet the health needs of the aged. The major medical problems of older people involve chronic illness and degenerative diseases. In a large number of these cases, the most important need is for medical care at home or in the doctor's office, rather than a lengthy hospital stay. In others the requirements range from partial care in the patient's home to more extended care in a nursing home.

6. Research has been stepped up into all aspects of preventive medicine and health maintenance. There also has been increased interest in the problems of mental health and the aged.

These steps are part of our carefully planned program to help the elderly. This plan has been well thought-out, and has taken several years to develop. Although the need is pressing, our first concern has been to provide a plan that would be effective and beneficial, without creating a financial burden on anyone else or impairing the dignity of the old people.

For these reasons, we oppose any hasty, expedient approaches based on the shortsighted theory of "pass-a-law-and-raise-the-Social-Security-tax-again."

Time, however, takes no heed of our problems. While we are concerned with developing and polishing the best possible program for the aged, there are others who see in the elderly a powerful voting group. The most obvious example of the expedient approach is the Forand Bill. Although it died in the last Congress, Representative Forand's proposed legislation has been reintroduced in this session.

For a number of reasons, Washington observers doubt that Forand-type legislation will make headway in Congress this year. However, we cannot doubt for a moment that it will be pushed for all it is worth during the presidential election year of 1960. So we cannot relax our defenses one bit until such undesirable legislation is finally defeated.

Several months ago, the *Journal of the AMA* reprinted an interview of a general practitioner from Britain, Doctor Alastair J. Marshall. In the article, Doctor Marshall expressed the opinion that America is heading down the same path England took to socialized medicine. He blamed it on the failure of American medicine to profit from the mistakes of our British colleagues. The interviewer raised the subject of the Forand Bill, asking Doctor Marshall's ideas on how we should oppose this legislation. He replied:

"If American doctors don't feel this is the best type of medicine for their patients, they should oppose it now. But you cannot do this unless you are unified—and you are *not* unified. If you Americans benefit from our experience you'll remember the words of your own Ben Franklin: 'We must all hang together, or assuredly we shall all hang separately'."

The *Louisville Courier-Journal*, in comparing the Forand Bill and the AMA program for the aged, had this to say:

"The AMA stands a much better chance of holding the line against drastic change . . . by proposing some improvement of its own than by relying on public dread of socialized medicine to overcome public demand for added medical services."

Rather than merely offering opposition to undesirable legislation, our immediate need is to mobilize the entire medical profession to help develop widespread, low-cost health insurance coverage for old people.

The success of our program hinges on the cooperation of every American physician. Each one of us must act positively and speedily. I know American medicine can count on your support.

535 N. Dearborn Street, Chicago 10, Illinois

Opportunities for children and youth  
to realize their full potential for a  
creative life in freedom and dignity.

## THE KEYNOTE ADDRESS —

# NEMOURS FOUNDATION CONFERENCE\*

I HAVE BEEN GIVEN the honor of making the Keynote Address for this conference. This honor I deeply appreciate, and hope that what I say, may meet the expectations of those planning the program. However, before commencing, I should like to bring you greetings from the Board of Directors of the Nemours Foundation and particularly from its President, Mrs. Alfred I. duPont, who is indeed sorry she cannot be present at this meeting today. I bring you her well wishes for a successful conference, which your speaker hopes will interpret to the people of Oklahoma more clearly than ever before the unmet needs of their children with handicaps.

It was particularly gratifying last May, when I came to Oklahoma City and met with such an enthusiastic group as Doctor Riley

A. R. SHANDS, JR., M.D.

A. R. Shands, Jr., M.D., graduated from the University of West Virginia Medical School in 1922. He is certified by the American Board of Orthopaedic Surgeons.

Formerly located at Duke University School of Medicine, Doctor Shands is now Visiting Professor of Orthopaedic Surgery at the University of Pennsylvania.

In addition to his membership in the American Orthopaedic Association, the American Academy of Orthopaedic Surgeons, the International Society of Orthopaedic Surgery and Traumatology and the Southern Surgical Association, Doctor Shands is President of the Medical Society of Delaware.

had brought together to discuss a first Nemours Foundation conference for Oklahoma. In the months since this time, the planning and organizing committees have certainly a job well done to their credit. Particularly

\*Presented at the opening of the First Oklahoma Nemours Foundation Conference on Handicapped Children, Oklahoma City, March 13, 1959.

have I been pleased with the part the Junior League has played. The many and enthusiastic letters I have received from Mrs. Smith and other members of the League, and the correspondence and many telephone conversations I have had with Doctor Riley have certainly shown the excellent planning which have gone into the arrangements for this conference. I wish to express the appreciation of the Nemours Foundation for all which has been done, and to personally say "thank you" to Doctor Riley, Mrs. Smith, Mrs. Head, and each and every one of you who have worked so hard to make this conference the success I know it is going to be.

Since very few in this audience know a great deal about the Nemours Foundation, it is appropriate that in the beginning of the conference a few words be said concerning what the Foundation is and what it has been doing.

The Nemours Foundation is a Southern organization; it was founded under the will of Mr. Alfred I. duPont in Jacksonville, Florida, in September, 1936, as a charitable corporation "for the care and treatment of crippled children but not incurables." The first activity of the Foundation was the building of a small hospital for orthopaedically handicapped children in Wilmington, Delaware. This is called the Alfred I. duPont Institute and was opened in July, 1940. Since this time over 6,600 children have been examined in its clinics and nearly 2,000 admitted to its wards. There is a very active program of teaching and resident training. Lectures and clinics are given for nurses, therapists and undergraduate and graduate medical students. In the laboratories there are basic research studies on problems of bacteriology and biochemistry—problems with results, which when translated into clinical practice, will help both the sick child and the sick adult.

In 1948 the Nemours Foundation decided to extend its work into other states. At this time the decision was reached that the greatest amount of good with the funds available could be done by sponsoring a conference program of a pattern which would enable the various agencies and organizations to get together to discuss common problems

and plan better services. As funds would not permit this to be done for all forty-eight states, and because Mrs. duPont felt that the greatest need was in the South, it was decided that this activity should be limited to the fifteen Southern States and the states adjoining Delaware. With this thought in mind, the first conference was arranged for in Jacksonville, Florida, by the Florida Children's Commission. At this meeting in February of 1949, there were representatives of thirty-three public and private agencies. This conference was followed by the establishment of a Committee on Services for the Handicapped Child in the Children's Commission to implement the recommendations of the meeting; in other words, a committee to translate words into action. Today, thanks to the activities of this committee, the Children's Commission, and fifteen later conferences, very few of the twenty-six unmet needs discussed at the first conference can be called real needs.

Two years later in 1951, a similar first conference was held in Virginia, arranged for by the Virginia Council on Health and Medical Care. This was followed first by four annual conferences and then by fourteen special sessions in regular annual meetings of physicians, health department personnel, social workers, school administrators, teachers, etc. In 1953 the first conference was held in Kentucky followed by two, in 1954 in North Carolina followed by four, in 1956 in Louisiana followed by two, and in Arkansas and Georgia. In 1957 first conferences were held in South Carolina, Tennessee and Texas, and in 1958 in Missouri, West Virginia and Alabama. Last week the fourteenth first conference was held in Mississippi. With this meeting in Oklahoma City, your state now becomes the fifteenth Southern State in the Nemours Foundation Conference Program. This is particularly gratifying to your speaker who has furnished much of the guidance incident to all of these meetings, which, with this conference, number forty-eight. It has been truly a story of self-evaluation, reawakening and action in all of the other Southern States. With this conference comes the end of what might be termed the Nemours Foundation "planting season," for during the last dec-



ade the seeds have been sown for an activity which it is hoped some day will flourish and grow into a great and large private philanthropic program of service to the South's handicapped children.

It should be said that the interest of the Nemours Foundation in the child with the handicap is broad and comprehensive. It is an interest in the whole child and its interest is with all types of handicaps. Its concern is not only with medical care, but also it has a concern for what happens to this child in his education, in his vocational training and placement in work, in his social and home adjustments, in his position in life and society, and, lastly, in his ultimate independence. The direction of our interest and thinking has been so focussed since the early deliberations of our Medical Advisory Board in 1937.

Since this is the year Oklahoma and all other forty-nine states will be deeply concerned with the acquiring of facts, figures and information for the 1960 White House Conference on Children and Youth, I think it is appropriate at this time to state the theme of this ten-year Washington meeting, which meetings in the last half century have done so much for our children. The theme is, "Opportunities for Children and Youth to Realize Their Full Potential for a Creative Life in Freedom and Dignity." Is not this the real theme of this conference today, interested primarily in the opportunities and unmet needs for handicapped children in Oklahoma? The discussions in the panels at this meeting will constantly relate to the potential development of children and how this developing process can be assisted in order to bring the handicapped child to his full and normal potential for a worth while and creative life. Normal potentials, it must be remembered, vary greatly with the individual child and the handicapping condition, and what would be the maximum normal potential for one child might not necessarily be that for another. The development of this potential takes place in all atmospheres and surroundings incident to a child's life; namely, in the home, in the school, in the community, and also in the hospital and convalescent institution. For the most effective job of child development,

there must be a closely knit plan, integrating what happens in one atmosphere and surrounding with that of what happens in the others. Emphasis should always be placed on the community, the use of local resources, and the synchronization of agency activity. Too often communities look to state agencies to accept their responsibilities and, unfortunately, in our present-day paternalistic era, too many states look too often to Washington for assistance.

First, what are the handicaps we should be concerned with in state services? There are four major headings of handicaps grouped according to cause or etiology: 1) those due to congenital malformation, 2) those due to developmental errors in growth, 3) those due to disease, and 4) those due to trauma, including injury at birth. Of the four, those due to congenital malformation form by far the greatest number (over 25 per cent in most recent Children's Bureau Statistics.) If handicapping conditions are grouped anatomically, those which involve the brain and its pathways form the largest number. When it is realized that well over three per cent of school children have mental retardation, three per cent have serious emotional and behavior problems, with five to fifteen per cent having these problems in all degrees, and a very high per cent of all handicapped children have damage to the motor centers of the brain, including those with convulsive disorders, the brain as a major focus of involvement in handicapping conditions probably constitutes at least one-half of the total of the more serious conditions. Next to the brain in importance as a major focus will come those conditions of speech, hearing and sight, with even a higher percentage of total numbers but not with as many of the more serious conditions; then come the conditions of the neuromuscular system; and next those of the skeletal system. Malformations of the heart and blood vessels, and cleft palates also, constitute a very large number. It must be remembered that ten per cent of all children have some type of handicap and only one-third of these have a single handicap. The average number of handicapping conditions per handicapped child is reported to be two and two-tenths.

In the programs of services for children

with different handicaps there are many common problems. If these common problems can be early recognized and understood by all agencies and their workers irrespective of their primary interest and an effort made by these agencies to coordinate activities when possible, the development of programs will be more rapid and their operation at less expense. An agency to render complete service must provide 1) case finding, 2) evaluation of the child as a whole and his handicap, 3) medical care, 4) education, academic and vocational, and 5) adjustment to home, family and community. These are what your speaker has referred to in many previous meetings as the five "E's" of all programs. The first E is for enumeration, the second for evaluation, the third for eradication, the fourth for education, and the fifth for emancipation. These five divisions of programs are what all agencies must be interested in if they are to render a complete service. Cooperation of agencies is essential if the best overall state program is to be established.

In the so-called total care of the child it must never be forgotten that it is the whole child as a living being who must be considered, and never should the child be thought of or planned for in terms of only the handicapping condition. Basic facts concerning the child's mental, physical and emotional states must be known and these considered in the plan for restoration to normal living. In planning this rehabilitation, consideration must be given to what the parents can do, what the relatives can do, what the community can do, and, finally, what the church can do. It must be determined what support and assistance is available from these sources. If we find amongst these sources lethargy, we must stimulate. If we find groping for what to do, we must furnish guidance. If we find a willingness to move but not knowing how to move, we must furnish leadership, and, above all, we must "follow through" once we have started action. As Doctor Ray Graham of Illinois said so pointedly at one of our recent meetings, "Let's go all the way in our efforts to rehabilitate these crippled children." But always remember we must think through on programs and plans, particularly after medi-

cal care, think what the child can do and what his home and community can do. Disappointment and frustration can oftentimes be laid at our doorsteps, due to hasty action and insufficient thinking on the part of those responsible both for planning programs as well as for planning for individual cases.

It is your speaker's feeling that a Key-note Address, in addition to proposing questions and furnishing starting points for discussion, should also suggest to the panel groups an outline of the more important subjects each panel should discuss. This he will do next, but first he would like to emphasize the point that what is best for the child is what the panels should be primarily concerned with in all its discussions. In our highly specialized services of today, divided into different disciplines, too often due to theory, unrealistic thinking and the desires of certain individuals to always do what has been done before, the good of the child may inadvertently and unintentionally be overlooked in planning. What I have to say to the panels might be likened unto the court procedure called "a charge to the jury by the judge." This "charge to the jury" will be given as the conditions are listed in the program.

*Panel I.* This panel of experts should come up with the information on the extent of convulsive disorders in your state. One in every 200 children is the national figure. The panel should discuss what the state program is; whether there is a good Diagnostic Center; whether the newer drugs to control seizures (effective in four-fifths of the cases) are readily available for those in need; what is being done to interpret epilepsy in the schools and in the communities and, above all, whether the state is providing a place for domiciliary care for the hopeless epileptic who cannot be controlled with drugs and properly cared for in the home.

Concerning mental retardation, the largest of all major problems (three in every 100 school children), your speaker needs to say little, for so much has been said that I am sure each panel member knows what information should be forthcoming. However, particularly the answers should be given to



what facilities are available for the three groups; namely, the educable, the trainable, and the custodial—sometimes classified as mild, moderate and severe. The tremendous stimulus, which is now being given by the State Chapters of the National Association for Retarded Children, is one of the finest things which has happened in our whole field of work in recent years, for the efforts of this group have stimulated and focussed public thinking on all types of handicapped children.

It is hoped that Panel I will discuss the specific needs for special education in Oklahoma (in most states only ten to twenty per cent in need are being reached) and have recommendations concerning the numbers of teachers needed and the present and future needs for the training of teachers in special education. The importance of the school and the teacher cannot be over-emphasized. It is only second in importance to that of the home and parents. It must be recognized that the school is only one of the many agencies dealing with our children, and all agencies must have an inter-related plan to be the most effective. In the discussion, special attention should be given to how the special education programs have been and should be developed with the thought that these should, as far as possible, be a part of normal education. In making plans the child should be planned for first as a normal individual and not as an individual with a handicap. It must be recognized that the teachers of handicapped children must have something to offer the handicapped child which other teachers do not have. It must be realized that special education is only justified when it serves the real true needs of the child and that many children have more than one handicap needing special consideration. It is hoped that the programs of special education in Oklahoma are including the preschool child and are making every attempt possible to place this child with a handicap into an educational program at the earliest possible time.

*Panel II.* This panel, concerned with mental health and behavioral disorders (three serious ones in every 100 school children), will discuss primarily the emotional

development of the child. The discussions should center around, first, normal development of emotional states and then what is being done and needs to be done in child guidance centers for those parents with children in need of help. A child with an acute emotional disorder is a family emergency and the community or the state should have facilities available to give the parents immediate help, which is the best prevention we have to keep these children out of state mental institutions when they become adults. The question of whether such facilities are adequate in Oklahoma should be discussed and, if not, what needs to be done. However, there is no doubt that many children, labelled as behavioral problems and emotionally unstable, are, in reality, perfectly normal.

In this panel there will be discussions on vocational rehabilitation. Particular attention should be paid to when the State Vocational Rehabilitation Services are first finding the youth in need of help. Twenty per cent of all rehabilitants in vocational rehabilitation programs are under twenty-one years of age. Too often these services are not brought into the picture early enough. If the vocational counselors can know about these problems as soon as they can legally furnish guidance, which is at fourteen years of age, their work can be made much more effective.

*Panel III.* This panel, dealing with cerebral palsy, needs no special direction. The incidence is one in every 350 population with more than one-half being under twenty-one years of age. So much attention has been paid to C. P. in recent years that nearly every state program includes some type of therapy and special education for the cerebral palsied child. However, perhaps there are not enough Cerebral Palsy Diagnostic and Treatment Centers and special education classes in Oklahoma to meet the needs. Also the personnel needs for cerebral palsy and all other programs should be discussed. Personnel shortage is the real bottleneck in all of our services today.

Concerning orthopaedic handicaps (thirty-two in every 1,000 school children), little special direction needs to be given to the



panel, other than to be certain Oklahoma has enough hospital beds to care for the children of all races and that there is a co-ordination between the hospital, school and home, and vocational services. Congenital anomalies (2.5 per cent of all live births) per se are more often orthopaedic in character. Particularly the problems of the congenital amputee should be discussed. Are there special Child Amputee Clinics in Oklahoma? This group of children has been sadly neglected over the past years, but since the emphasis by the Children's Bureau on Child Amputee Clinics and the activity of the Prosthetics Research Board of the National Research Council in sponsoring special prosthetic training courses, a great deal more is now being done than ever before.

Concerning the cardiac handicaps, discussions should take place concerning numbers and particularly what the available facilities are for special cardiac surgery and for the convalescent care of the child with the rheumatic heart and rheumatic fever. The problem of congenital hearts is much larger than it was thought to be in the past. It occurs in eight to ten cases in every 1,000 live births and ordinarily one-half of this number die in the first year of life.

*Panel IV.* This panel, dealing first with impaired vision and eye handicaps (fifteen per cent of all school children), should discuss what is being done in the school for the child with defective vision. Very seldom is there a problem of the care of the child who is completely blind (one in every 2,000 children), but the child who has so-called "weak eye sight" often suffers from lack of proper attention. The hearing and speech programs in the schools and communities should be thoroughly discussed and a determination made as to whether there are sufficient facilities for diagnosis and training of the five to ten per cent of all children with these handicaps.

Cleft palate rehabilitation (one cleft palate baby in every 800 live births) is something which has come to the fore in recent years, thanks to the leadership of Doctor Herbert K. Cooper of the Lancaster, Pennsylvania, Cleft Palate Clinic. Cleft palate teams and special clinics are now found in nearly every part of the country. It should be determined by the panel whether there are adequate facilities for diagnosis, surgery, and speech correction for cleft palate children in Oklahoma.

If the answers to the above questions and many others are found in the four panel reports tomorrow, your speaker will consider that each panel has done its work well. Out of the panel recommendations will come the list of the unmet needs of the state, which represents the key information this conference will produce.

Then there will be needed an "action body" to follow up the recommendations. In most states this has been in the form of a State Coordinating Council on the Handicapped Child. Such a Council I hope may be organized in Oklahoma, either following or at the time of this conference. Such a Council should be representative of the key agencies; its objectives will be, in addition to acting on the conference recommendations, to point out deficiencies in programs, to stimulate present agencies to meet responsibilities, to help others to establish new programs as indicated, and to provide leadership and guidance, all of which will lead to more efficient and often times more economical services for your handicapped children.

The Foundation and its Medical Director stand ready to give assistance to Oklahoma as needed, and it is hoped that this conference will be only the beginning of a long and pleasant working relationship between the Foundation and Oklahoma's services for the handicapped child.

Nemours Foundation, Wilmington, Delaware



## OSTEOCHONDritis DEFORMANS

OSTEOCHONDritis, or focal aseptic necrosis, of the various ossific centers of the skeleton was first described about fifty years ago. Because of the difficulty in obtaining biopsy and autopsy material there has been little advancement in our knowledge of the etiology and pathology. The consensus favors trauma as the initiating factor, thus producing vascular damage with subsequent sterile necrosis in the affected area, which is typified radiologically by sclerosis and fragmentation. The resulting deformity and upset in the normal growth of bone appears to be due largely to pressure and traction on surrounding structures during the course of weight bearing on the part concerned. Until recently the condition, at each of several varying skeletal centers of ossification both primary and secondary, was interpreted as a separate and distinct entity and was frequently referred to by the names of those who first described the disease at a specific site. This confusing nomenclature has now been largely revised to group all of these diseases under the common title of osteochondritis, or perhaps the preferable term, "focal aseptic necrosis" which does not signify any idea of inflammation. This condition has been noted at some twenty-eight or twenty-nine different sites, some primary and some secondary centers, which were conveniently tabulated by E. Rohan Williams<sup>37</sup> in 1950 (Table 1). Since then two new locations have been described . . . the

**J. CHARLES MONNET, M.D.**

J. Charles Monnet, M.D., graduated from the University of Oklahoma School of Medicine in 1956 and he is a Resident in Orthopaedic Surgery, Oklahoma University Medical Center, now serving at Bone and Joint Hospital in Oklahoma City.

superior tibial epiphysis<sup>1</sup> and the second cuneiform of the tarsus.<sup>20</sup>

Infection, tuberculosis, vitamin deficiencies, vascular thrombi and hormonal disturbances have been implicated as casual in various types of the general classification of osteochondritis. Of these factors, infection and tuberculosis have been definitely excluded.

A basic theory which has been held for many years states that osteochondritis of the growth centers is due to insufficient nutrition of the epiphysis, resulting from a demand which is greater than the physiologic supply. This theory is based on the knowledge that the disease occurs in each epiphysis at the age period when that epiphysis is in the stage of most rapid growth. At this time the vascular system is taxed to its physiologic limit in supplying the needed nutrition to the epiphysis. If a need for increased nutrition arises, the immediate demand might be greater than the supply. As a result of improper nutrition anemia occurs

# OSTEOCHONDRITIS

	PRIMARY CENTERS	SECONDARY CENTERS
SPINE	Vertebral body (Calve) 1925	Epiphyseal Plates (Scheuermann's) 1921
UPPER LIMB	ADULT Semilunar (Kienbock, 1910) Scaphoid (Preisner)	Clavicle, sternal (Friedrich 1924) Humerus, head (Hass, 1921) (Lewis 1927) Humerus, capitellum } Brilsford (1935) Radius, head } Ulna, distal (Burns, 1931) Metacarpals, heads (Mauclaire, 1927)
UPPER LIMB	Patella (Köhler 1908) Astragalus (Mouchet 1928) Scaphoid (Köhler 1908) Medial cuneiform (Buschke, 1934) Adult scaphoid (Brailsford, 1935)	Iliac crests (Buchman, 1925) Pubic symphysis (Van Neck, 1924) Ishio pubic junction (Voltancole, 1925) Acetabulum (Brailsford, 1935) Femur, head (Perthes'-Legg-Calve', 1910)  Femur, neck (Gütig & Hertzog, 1932) Femur, Trochanters (Monde Felix, 1922) Patella Polar (Sinding-Larsen, 1921) Tibia, head (Ritter, 1929) Tibia, tubercle (Osgood, 1903) Os calcis (Sever, 1912) 1st metatarsal, proximal (Wagner, 1930) 2nd and 3d metatarsals, heads (Freiberg, 1914)

TABLE I

in that part of the epiphysis which normally has the least supply of blood, the central subchondral zone. This portion then undergoes a degenerative change manifested by aseptic necrosis. With continued use of this diseased epiphysis the thin shell of necrotic bone surrounding it begins to break down, producing fragmentation, which can be seen on an x-ray film.

Because of the numerous sites of involvement in osteochondritis deformans only the more common locations will be discussed in regard to etiology, pathology, symptoms and treatment.

## Perthes' Disease

Osteochondritis of the hip is also known as osteochondritis deformans coxae juvenilis, or coxa plana, and was described independently by Legg, by Perthes and Calve, hence is also known as Legg-Perthes'-Calves' disease.<sup>30</sup> It occurs between the ages of four and ten years, involving boys predominantly (4 to 1), and is unilateral in ninety per cent

of the cases. The cycle of events from the original degeneration to complete replacement varies from eighteen months to five years. Howorth<sup>22</sup> describes four definite stages in the cycles: 1. The early stage, lasting several weeks, with changes in soft tissues and mild symptoms associated with synovitis. 2. The active stage, lasting a year or two, in which degeneration in the head and softening as the epiphyseal disc occur. 3. The healing stage, lasting three to four years, in which dense areas are replaced by normal bone. 4. The residual stage, in which only the deformity, coxa plana, remains. This division into stages is well accepted, though it is felt by some investigators that a fifth stage of degenerative arthritis, or malum coxae senilis, should be added.

The cause of Perthes' disease is not known. Trauma is considered as a major factor by some and as an incidental factor by others. Certainly the preponderance of boys in any series would strongly suggest its importance. Infection is suspected be-



cause of associated swelling, tenderness and early signs of mild sepsis. A hereditary relationship has been demonstrated by Stephens and Kerby<sup>24</sup> in 1946 and by Hamsa and Campbell<sup>17</sup> in 1952. The former authors reported twenty-eight members of a family, of five generations, with Perthes' disease. The latter authors reported three cases in a single family. Endocrine disturbances have been suspected. However, there is no definite proof of this relationship, particularly since the majority are unilateral involvements. The question of thyroid dysfunction has also been studied with the aid of various laboratory tests but the results have been somewhat confusing. Emerick and Corrigan,<sup>7</sup> using radioactive iodine, found an abnormality of thyroid function in all of their seventy cases. Chapman,<sup>5</sup> however, used the same test under controlled study and found no abnormalities of thyroid function. Katz<sup>23</sup> reported thirty-two cases and Gill<sup>14</sup> reported twenty cases. All were found to have no abnormalities of thyroid function. Therefore, it can be seen from the work of these four authors that the question of thyroid dysfunction is still contradictory.

The pathologic changes in Perthes' disease are best described by Haythorn,<sup>18</sup> who made microscopic sections of curettement material removed at operation in thirty-three cases. His findings were constant aseptic necrosis, crushing, concurrent degeneration and repair, partial ossification of displaced cartilaginous tissue, loss of polarity of chondrocytes, small cartilaginous cysts, and areas of fibrous cyst formation. The conclusions he drew from these cases, and their microscopic picture, are as follows:

1. The disease is primarily a prepubescent degenerative condition with aseptic necrosis of the epiphysis and upper portion of the metaphysis of the femur, depending in part on some deficiency.

2. The weakened head becomes flattened, due to weight bearing injuries, and the remainder of changes are the result of attempts at healing.

An interesting study was done by Randlov-Madsen<sup>31</sup> in 1946 who injected alcohol into the vessels and nerves running to the

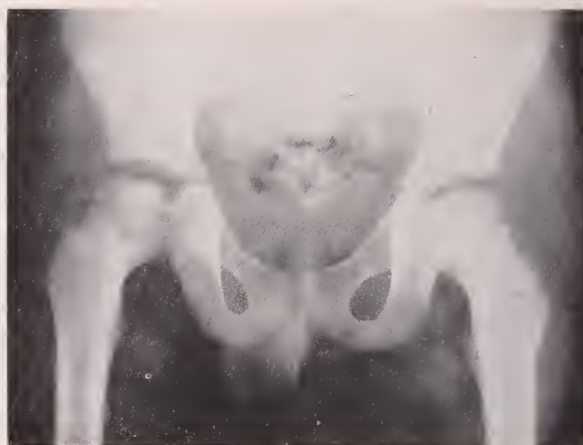


FIGURE 1-A

Perthes' Disease in a five year old boy.

head of the femur in young rabbits. He was able to produce microscopic, radiographic and histologic changes similar to those in Perthes' disease.<sup>11-13</sup>

The usual roentgenographic findings in Perthes' disease consist of flattening of the femoral head, with fragmentation and sometimes cavitation of the ossification center.



FIGURE 1-B

Same patient (Spot film)—Note irregularity of the epiphysis and acetabulum with an area of radiolucence beneath the epiphysis.

The process may involve the epiphyseal line causing the neck of the femur to become broader than normal. In un-treated cases of long standing, the head becomes too large for the acetabulum, extends beyond it, and has the appearance of having been crushed by the acetabular rim (Figures 1-A to 1-E). Descriptions, made at the time of operation, would indicate that the appearance of crushing was more apparent than real since the



FIGURE 1-C

Same patient, age 6 years, with evidence of fragmentation of the epiphysis, flattening of the head and widening of the neck.

head was not flattened but had remained spheroidal and the cartilage appeared to be normal except for thickening.

Symptomatically Perthes' disease usually presents with a limp, which is neither severe nor disabling, but which is more noticeable with fatigue or increased physical stress. Pain may, or may not, be present. However, if pain is present it is more frequently found at the site of the knee on the affected side than at the hip site. Trauma



FIGURE 1-D

Same patient, now 12 years old. The process is healed with residual flattening of the head and flaring and thickening of the neck.

at the onset is often obtained in the history. Clinical examination usually reveals muscle spasm about the hip, pain on the extremes of motion and limitation of both internal rotation and abduction, to a varying degree. Occasionally there is tenderness over the anterior portion of the hip joint. Anterior-posterior thickening of the joint has been described as an early sign and should be sought by careful palpation. When a child presents this clinical picture it is most important that a roentgenogram of the pelvis, to include both hips, be made.

Treatment in Perthes' disease is similar to the other osteochondroses in that rest is the basic principle. Numerous series of cases,<sup>6, 8, 9, 19, 29</sup> with and without rest, have been reported. (These have included bed-rest alone, ischial weight bearing braces, hip

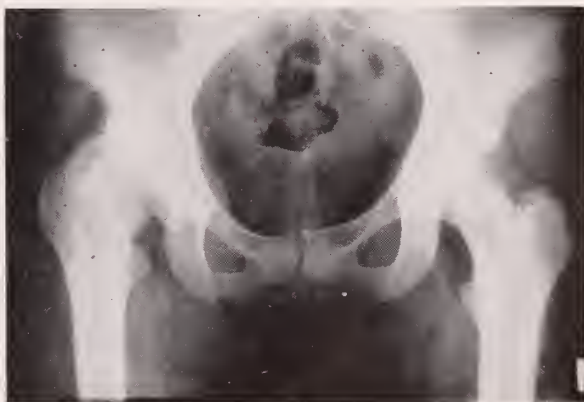


FIGURE 1-E

Case of Perthes' Disease in a 21 year old girl, showing residual deformity of the head and neck.



spica casts, crutches with footstrap to keep the knee flexed and prevent weight bearing, and a combination of these methods.) At times operation is resorted to for various drilling procedures. Administration of thyroid has been of help in some patients. Goff<sup>15</sup> used Aureomycin in twenty-five cases and found that it accelerated growth by thirty per cent, and by so doing, accelerated the re-ossification of the capital femoral epiphysis, or other growth centers when they were involved, thus decreased the healing period. Probably the most important factor in long-term studies is . . . the length of time between onset of symptoms and the start of treatment.

### Osgood-Schlatter's Disease

Osgood-Schlatter's disease is an affection of the descending lip of the upper tibial epiphysis. This is usually found in active boys from ten to fifteen years of age. Again, as in the other osteochondroses, the etiology is not yet definite. Three common textbook theories of pathogenesis has persisted. 1. Primary aseptic necrosis. 2. Changes primarily in the tendon, with degeneration of the tendinous tissue; metaplastic ossification in the tendon and secondary changes in the underlying tubercle. 3. The entire lesion is caused by traumatic avulsion of a part of the tubercle.

Uhry<sup>35</sup> in 1944 and Rapp<sup>32</sup> in 1958 concluded that the disorder was based on minor separation of structures, in the tibial tubercle and patellar ligament and that the characteristic pathological changes represented scar-callus repair at the sites of separation. They did not feel that inflammation, endocrine or vascular changes were in evidence and that the immediate instigating factor was consistently trauma. A very interesting observation was made by Willner and Willner,<sup>38</sup> in which twenty-three cases were studied and all were found to have one of the three following abnormalities: 1. Marked pronation of the feet. 2. Inward displacement of the patella. 3. Genu valgus.

They thought that all of these gave an inward pull on the patellar tendon attached to the tibial tubercle. Very satisfactory results were reported by treatment consisting



FIGURE 2

Bilateral Osgood-Schlatter's Disease in a boy, age 12 years. Arrow points to fragmented tibial tubercles.

of inner heel wedges, longitudinal arch supports or insertion of navicular pads in both shoes until fifteen years of age. A response to therapy, with relief, was noted at six weeks in twenty cases and twelve weeks in three additional cases. Their own results, treated by casting and operation, required one to one and one-half years for relief of symptoms.

The symptoms of Osgood-Schlatter's disease are pain at the insertion of the patellar tendon into the tibial tubercle, and limp. Swelling, tenderness, and sometimes increased local heat are found on examination. On careful inspection the roentgenograms show an irregular appearance and fragmentation of the epiphyseal lip of the proximal tibia (Figure 2).

Conservative measures, such as a cotton cast, posterior splint, or long leg cast for six to ten weeks usually results in a cure, however, if these fail, operation is the ultimate therapy.

### Schuermann's Disease

This condition is an epiphysitis of the dorsal and lumbar vertebrae and has been called deforming juvenile dorsal osteochondritis, osteochondropathic kyphosis, dorsal kyphosis of adolescents, dorsal juvenile kyphosis, and vertebral epiphysitis of growth. Calve, in 1925, described a type of vertebral osteochondritis resembling that involving the hip which was recognizable roentgenographically by flattening of the vertebrae, due to loss



of the normal bony trabeculae, giving the appearance of abnormal condensation and density. This finding differs greatly from that in vertebral epiphysitis which involves the secondary epiphysis and not the primary epiphysis. Also, the former appears during the first decade and later during the second decade.

The etiology of Scheuermann's disease has been attributed to late rachitis; to static deficiency of the vertebral column, with muscular insufficiency and relaxation of the ligaments; to repeated slight trauma; to vasomotor disturbances of undetermined origin; to endocrine dysfunction; to infection; and to primary changes in the intervertebral disks in the dorsolumbar region with protrusion of the pulpy and gelatinous nucleus, rupture of the lamina of the disk, and resultant cuneiform deformation of the vertebrae. The most widely accepted view (Hafner<sup>16</sup>) is that there is primarily a lesion of the intervertebral disks resulting in herniation of the disk material into the vertebral bodies (Schmorl's nodes). This loss of substance results in increased pressure between adjacent vertebrae with the greater force anteriorly because the vertebrae are hinged behind at the intervertebral joint. When the secondary centers of ossification for the upper and lower epiphyseal rings appear at the time of puberty the centers are subjected to pressure anteriorly and interference with their growth occurs. This process results in wedging which is characteristically limited to the anterior portions. An entirely different theory is that of Ferguson<sup>10</sup> who believes that the condition can be traced to early infancy and is caused by exaggeration, or persistence, of the vascular pit and groove on the anterior and lateral surfaces of the vertebral body which normally are obliterated by the age of five or six years. He states that in Scheuermann's disease the vascular groove persists into puberty and is responsible for the wedging, with epiphyseal changes being secondary manifestations. Vitamin A deficiency has been suspected; however, Wuensch<sup>30</sup> points out that people living in the country consume twice the amount of Vitamin A as city dwellers but Scheuermann's disease is eight times more common in country



FIGURE 3-A

Scheuermann's Disease . . .

11 year old boy with kyphosis and early evidence of fragmentation and irregularities in the vertebral epiphysis.

people. He further points out that you would expect to find this condition in the poorer classes and in the Philippines, where every third child has xerophthalmia, yet this is not the case. Kemp<sup>24,25</sup> reported twenty cases, all coming from families of poor circumstances, and concluded that a nutritional factor was important.

The characteristic x-ray findings in Scheuermann's disease, according to Williams<sup>56</sup>, are as follows:

1. Irregular anterior marginal shelving of the upper and lower borders of the bodies, with or without a localized crumbling appearance of the adjacent cancellous bone.
2. Deep indentation of the body margin (Schmorl's nodes).
3. Irregular sclerosis in the cancellous bone immediately adjacent to



FIGURE 3-B

14 year old boy with more advanced irregularities and fragmentation of the vertebral epiphysis.

the epiphysis. 4. Irregularity in density and outline of the epiphyseal plate. 5. Anterior wedging of the dorsal and lumbar vertebrae (Figures 3-A to 3-E). The differentiation from tuberculosis and compression fractures is difficult when one or two vertebrae are involved. Sclerotic margins with no soft tissue swelling are noted in Scheuermann's disease, whereas the reverse is true in tuberculosis.

When discussing symptomatology it is best to separate that of adolescence from that of adults (Brocher<sup>2</sup>). The most striking symptom in adolescents is a modification of the vertebral axis. There is a kyphosis with a great radius of curvature; an abnormally straight dorso-lumbar region, more rarely a dorsal scoliosis or dorso-lumbar scoliosis, or finally, a lumbar kyphosis. Again, in many cases tuberculosis is feared. Pain occurs in only twenty per cent of the patients less than eighteen years of age. The pain is

diffuse and is situated in the lumbar or dorsal musculature. It often becomes manifest only after prolonged exertion and is relieved by rest. The second important clinical objective symptom in adolescence is stiffness of a vertebral segment. In adults, pain is much more frequent than in adolescents and may be limited to a single spinous process. The eventual spinal deformities are posterior-anterior wedging of the vertebral bodies, irregularity of the upper and lower margins of the bodies, with or without Schmorl's node indentations, narrowing of the disk spaces, anterior marginal osteophytosis and spondyarthrosis at the true spinal synovial joints. Treatment should be started as soon as the diagnosis is made. This varies with different authors; however, basically it consists of relief of pain by rest on a flat bed, plaster casting to correct the kyphosis, or an extension type brace.



FIGURE 3-C

16 year old boy showing a marked kyphosis, anterior wedging, advanced fragmentation, irregularities of the epiphysis and Schmorl's nodes.

Vitamin A and Vitamin D, along with adequate calcium and nutritional intake should be directed. If un-treated the round back deformity will develop.

### Sever's Disease

Involvement of the calcaneal apophysis was described by Sever<sup>33</sup> in 1912. Since that time numerous cases have been reported. This condition occurs in growing boys who are overly active, particularly following strenuous exercises. Pain, swelling and tenderness at the insertion of the Achilles' tendon are the characteristic symptoms. The wearing of tennis shoes is commonly seen in these patients, and is postulated or etiological because lack of heels thus places excessive strain on the attachment of the Achilles' tendon into the os calcis. X-rays show an increased density and sometimes fragmentation of the apophysis of the os calcis (Figure 4). Treatment by elevation of the heel of the shoes takes the tension off the Achil-



FIGURE 3-D

Localized lesions in lumbar vertebrae in a 13 year old male.



FIGURE 3-E

Spot film of case "D". Tuberculosis is very similar, however, the lack of sclerotic margins and the presence of soft tissue swelling are helpful in differentiating the two.

les' tendon and the symptoms usually subside rapidly.

### Kohler's Disease

Kohler's disease<sup>27</sup> manifests itself by

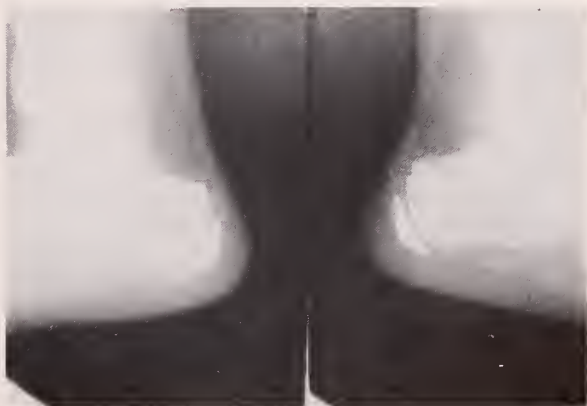


FIGURE 4

Sever's Disease in an 11 year old boy . . . Note dense calcaneal apophysis.





FIGURE 5

Kohler's Disease in an 11 year old boy . . . Arrow points to dense, irregular, thin carpal-navicular.

aseptic necrosis of the tarsal-navicular and clinically produces pain on walking, swelling and tenderness over the tarsal-navicular. Again, this is found in growing children, more commonly in boys. The x-ray reveals irregularity of the borders, sclerosis, and thinning of the tarsal-navicular (Figure 5). Treatment is conservative and consists of insertion of an adequate arch support in the shoes.

#### Freiberg's Disease

Freiberg<sup>12</sup> described an aseptic necrosis of the head of the second and third metatarsals in 1914. These patients complain of pain, swelling and tenderness over the head of the second and third metatarsals, of progressive duration. There may be a history of trauma. X-rays show an irregularity of the articular surface, increased density, and flattening of the metatarsal head (Figure 6). Insertion of a metatarsal pad into the shoe, or a metatarsal bar across the sole of the shoe, just behind the ball of the foot,

usually is sufficient for a cure. Occasionally it may be necessary to resect the head of the bone, particularly in patients who develop degenerative arthritis in later life.

#### Kienboch's Disease

When the carpal-lunate is involved the condition is called Kienboch's<sup>26</sup> disease. This is one of the few osteochondroses which primarily occurs in adults. There is pain, tenderness, and weakness of grip in the involved wrist. X-rays show increased density of the carpal-lunate with some vacuolization and later fragmentation (Figure 7). Conservative therapy by immobilization in a plaster splint, with the wrist in mild dorsiflexion, for three to eight weeks is the treatment of choice.

#### Osteochondritis Ischiopubica

Osteochondritis ischiopubica<sup>22</sup> is a relatively uncommon disorder. It occurs most commonly between the ages of five and nine years. Eighty-five per cent of the cases are



FIGURE 6

Frieberg's Disease in an 18 year old girl . . . Note irregularity, thickening and increased density of the head of the second metatarsal.



FIGURE 7

Kienboch's Disease in a 28 year old male, showing increased density, with irregularity of the articular surfaces of the carpal-lunate.

in boys. The onset of pain is slow and there may be a history of trauma. Pain in the hip is most commonly present, but there may be pain referred into the groin or knee. When the patient limps, adductor spasm and limitation of motion of the hip are present. The symptoms are very similar to Perthes' disease and this condition may be confused with Perthes' until the x-rays are obtained. The x-ray appearance is that of decalcification, rarefaction, and cystic areas of absorption. Some weeks or months later recalcification is present. A triangular or rounded swelling is seen in the region of the ischiopubic junction which is sharply circumscribed and surrounded by normal bone. The x-ray illustration in Figure 8-A shows involvement of the inferior pubic ramus at its attachment to the ischium. This is a benign disease and the symptoms subside rapidly within a few weeks without any special treatment.

Since a discussion of all the reported locations of osteochondritis would be too extensive a survey for this type of paper, reference may be made to Table 1 for all of the presently accepted locations.

### Conclusions

1. The lesion is similar in the various epiphyses and occurs in each epiphysis during its most active period of growth.

2. Healthy, active, well developed patients are most commonly affected.

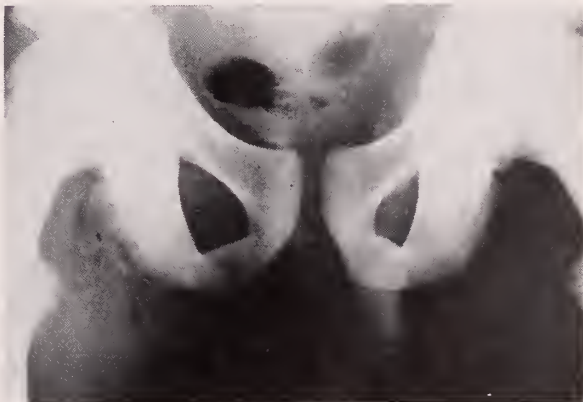


FIGURE 8-A

Osteochondritis Ischiopubica in a boy 15 years of age . . . Note fragmented inferior ischiopubic border unilaterally.



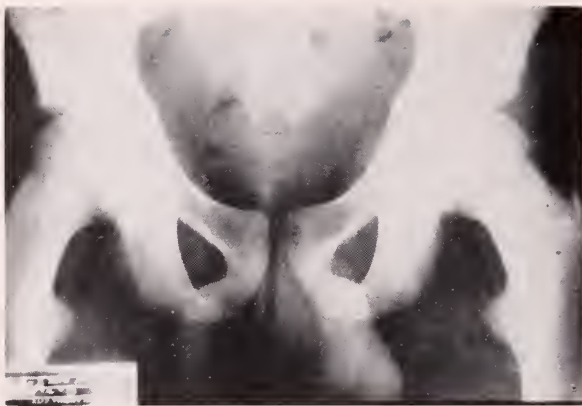


FIGURE 8-B

Same case . . . three months later, showing healing.

3. The etiology of the disease has never been definitely proved, however, the most widely accepted theory is that the demand of the epiphysis for nourishment is greater than the supply.

4. The pathologic change consists of aseptic necrosis, with secondary fragmentation, healing and deformity of the epiphysis.

5. Diagnosis is based entirely on clinical and roentgenological findings.

6. Treatment is rest of the affected epiphysis by conservative measures if possible.

#### REFERENCES

1. Boldero, J. L., Mitchell, G. P.: Osteochondritis of the Superior Tibial Epiphysis. *Journ. Bone & Joint Surg.* 36B: 114 (Feb.) 1954.
2. Brocher, J. E. W.: Scheuermann's Disease. *Revue du rhumatisme et des maladies osteoarticulaires* 15: 1811 (June) 1948.
3. Calve, J.: Sur une forme particuliere de pseudo-coxalgie graffe sur des deformations caracteritiques de la extremité superieure de femur. *Rev. de Chir., Paris* 30: 54-84, 1910.
4. Calve, J.: Localized Affection of Spine Suggesting Osteochondritis of Vertebral body with Clinical Aspects of Pott's Disease. *J. Bone and Joint Surg.* 7: 41, 1925.
5. Chapman, E. M.: Thyroid Function in Legg-Perthes' Disease. *New England J. of Med* 255: 289-290 (Aug.) 1956.
6. Danforth, M. S.: The Treatment of Legg-Calve-Perthes' Disease without Weight Bearing. *J. Bone and Joint Surg.* 16: 516-534, 1934.
7. Emerick, R. W., Corrigan, K. E., Joistad, A. H., Holly, L. E.: Thyroid Function in Legg-Calve-Perthes' Disease; A New Approach to an Old Problem. *Clinical Orthopaedics*, No. 4: 160-165, 1954.
8. Evans, D. L.: Legg-Calve-Perthes' Disease: A Study of Late Results. *J. Bone and Joint Surg.* 40-B (2): 168-181 (May) 1958.
9. Evans, D. L., Lloyd-Roberts, G. C.: Treatment in Legg-Calve-Perthes' Disease: A Comparison of In-patient and Out-patient Methods. *J. Bone and Joint Surg.* 40-B (2): 182-189 (May) 1958.
10. Ferguson, A. B.: *Roentgen Diagnosis of the Extremities and Spine.* 2nd Edition: 407, 1949.

11. Ferguson, A. B.: Early Roentgenologic Changes in Perthes' Disease. *Clinical Orthopaedics*, No. 1: 33-42, 1953.
12. Freiberg, A. H.: Infraction of the Second Metatarsal Bone. *Surg., Gynec. & Obst.* 19: 191, 1914.
13. Gill, A. B.: Legg-Perthes' Disease of the Hip; Its Early Roentgenographic Manifestations and its Clinical Course. *J. Bone and Joint Surg.* 22: 1013-1047 (Oct.) 1940.
14. Gill, A. B.: The Relationship of Legg-Perthes' Disease to the Function of the Thyroid Gland. *J. Bone and Joint Surg.* 25: 892-901 (Oct.) 1943.
15. Goff, C. W.: Growth acceleration in Legg-Calve-Perthes' Syndrome by Complimentary Feeding of Aureomycin. *Clinical Orthopaedics*, No. 6: 95-109, 1955.
16. Hafner, R. H. V.: Localized Osteochondritis, Scheuermann's Disease. *J. Bone and Joint Surg.* 34-B (1): 38-40 (Feb.) 1952.
17. Hamsa, W. R., Campbell, L. S.: Osteochondritis Deformans Coxae Juvenilis. *Am. J. Dis. Child* 86-54 (July) 1953.
18. Haythorn, S. R.: Pathologic Changes Found in Material Removed at Operation in Legg-Calve-Perthes' Disease. *J. Bone and Joint Surg.* 31-A: 599-611 (July) 1949.
19. Herndon, C. H., Heyman, C. H.: Legg-Perthes' Disease; and Evaluation of Treatment by Traction and Ischial Weight Bearing Brace. *J. Bone and Joint Surg.* 34-A (1): 25-46 (Jan.) 1952.
20. Hicks, B. T.: Osteochondritis of the Tarsal Second Cuneiform Bone. *Brit. J. of Radiology* 26: 214, 1953.
21. Holsti, L. R.: Osteochondritis Ischiopubica. *Acta Radiol, Stockholm*, 45 (3): 178-184 (March) 1956.
22. Howorth, M. B.: Coxa Plana. *J. Bone and Joint Surg.* 30-A: 601-602, 1948.
23. Katz, J. F.: Protein 'bound iodine in Legg-Calve-Perthes' disease. *J. Bone and Joint Surg.* 37-A (4): 842-846 (July) 1955.
24. Kemp, F. H., Wilson, D. C.: Social and Nutritional Factors in Adolescent Osteochondritis of the Spine. *Brit. J. Social Med.* 2: 66-70 (April) 1948.
25. Kemp, F. H., Wilson, D. C.: Further Report on Factors in Etiology of Osteochondritis of the Spine. *Brit. J. Radiology* 21: 449-451 (Sept.) 1948.
26. Kienboch, R.: Uber Traumatische Maladie des Mondbeins. *Fortsch, a.d. Geb. d. Rontgenstrahlen* 16: 77, 1910.
27. Kohler, A.: Uber die Haufingen Krankheiten des Kinderknochen. *Munchen Med. Wchschr* 55: 1923, 1908.
28. Osgood, R. B.: Lesions of the Tibial Tubercle Occurring During Adolescence. *Boston M & S Jour.* 148: 114-117, 1903.
29. Pedersen, H. E., McCarrol, H. R.: Treatment of Legg-Perthes' Disease. *J. Bone and Joint Surg.* 32-A: 663-670, 1950.
30. Perthes', G. C.: Uber Arthritis Deformans Juvenilis. *Deutsche Ztschr. Chir.* 107: 111-159, 1910.
31. Randlov-Madsen, A.: Experimental Investigation into Etiology of Calve-Perthes' Disease. *Acta Orthop Scandinav* 19: 6-18, 1949.
32. Rapp, I. H., Lazerte, G.: Clinical Pathological Correlation in Osgood-Schlatter's Disease. *South Med. J.* 51 (7): 909-912 (July) 1958.
33. Sever, J. W.: "Apophysitis of Os Calcis." *N.Y. State J. Med.* 95: 1025, 1912.
34. Stephens, F. E., Kerby, J. P.: Hereditary Legg-Calve-Perthes' Disease. *J. of Heredity* 37: 153-160, 1946.
35. Uhry, E.: Osgood-Schlatter's Disease. *Arch. Surg.* 48: 406, 1944.
36. Williams, E. R.: Observations on the Differential Diagnosis and Sequela of Juvenile Vertebral Osteochondrosis. *Acta Radiologica Supplementum (Stockholm)* No. 116: 293-299, 1954.
37. Williams, E. R.: *A Text Book on X-ray Diagnosis*, 2nd Edit: 325, 1950.
38. Willner, P., Willner, A.: Osgood-Schlatter's Disease, its Development and Treatment. *J. Medical Society of N.J.* 52 (6): 304-305 (June) 1955.
39. Wuensch, K. E.: Pathogeneseis, Early Diagnosis and Prophylaxis of Scheuermann's Disease. *Deutsche Medizinische Wochenschrift* 82: 286 (Feb. 15), 1957.

605 N.W. 10th, Oklahoma City, Oklahoma



# Arterio-Venous Fistula:

## RUPTURE OF ABDOMINAL AORTIC ANEURYSM INTO THE VENA CAVA

ONE OF THE most dramatic complications of arteriosclerotic aneurysm of the abdominal aorta is rupture into the vena cava with a resulting large central arterio-venous fistula. This condition has been reported with increasing frequency in the past several years, though the number of successful surgically treated patients to date is only three. The purpose of this communication is to record the fourth successfully treated patient and to point out that the reported cases have presented a strikingly similar, easily recognizable, clinical picture. Furthermore, early surgical correction of the arterio-venous fistula has resulted in an excellent recovery rate in the reported patients.

### Case Report

L.S., a 65 year old, white male retired railroad worker was admitted to the University of Oklahoma Medical Center on 6 January 1959, complaining of back pain and swelling of the legs of two weeks duration.

The family history was not helpful. The patient had been in good general health except for mild hypertension of several years duration. There was no history of recent injury or operation.

One month before hospital admission the patient had experienced the gradual onset

**G. RAINEY WILLIAMS, M.D.**

**JAMES A. WEBB, M.D.**

G. Rainey Williams, M.D., graduated from Northwestern University Medical School in 1950. His practice is limited to his specialty, General and Thoracic Surgery. Formerly with Johns Hopkins Hospital, Doctor Williams is presently Assistant Professor of Surgery at the University of Oklahoma Medical Center.

A graduate of the University of Oklahoma School of Medicine in 1953, James A. Webb, M.D., limits his practice to his specialty, General Surgery. At the present time, he is Chief Resident in General Surgery at the University Hospital, but plans to enter private practice in Ponca City in July.

Doctor Webb is a Candidate of the American College of Surgeons.

This paper is from the Department of Surgery, University of Oklahoma Medical Center.

of severe lumbar back pain radiating to both hips. Two weeks before admission he noted swelling of the lower extremities and concomitantly became short of breath. Because of increasing severity of these complaints, the patient was referred to the University Hospital Outpatient Clinic.

On admission, the patient was a well developed, obese, white male who appeared to be acutely ill. Vital signs were: temperature



FIGURE 1

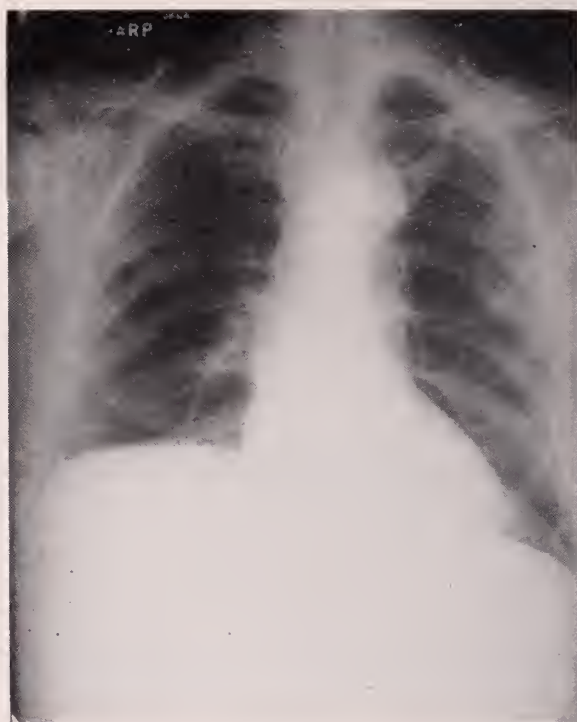


FIGURE 2

Comparison of chest X-Rays taken one day preoperatively (Figure 1), and one week postoperatively (Figure 2) showing decrease in heart size and clearing of pulmonary vascular congestion.

98.6°, pulse 96/minute, respiration 30/minute, blood pressure 130/70 (both arms). There was no cyanosis. The neck veins were full. Rales were present throughout both lungs. The heart was not enlarged to percussion. There was a sinus rhythm and a soft systolic murmur was audible at the apex. The abdominal veins were dramatically engorged and filled from below. No pulsations were visible in these veins. Abdominal examination was unsatisfactory because of obesity, but no mass was palpable. There was a loud bruit, audible over the entire abdomen and back. Massive pitting edema involved the lower extremities and lower trunk. Femoral pulses were palpable, but no distal pulses were felt in the edematous lower extremities.

The pertinent initial laboratory data included: hemoglobin 11.2 gm., hemocrit 37%, WBC 10,250. Urinalysis revealed a trace of protein and an occasional white cell. An insufficient quantity was obtained on admission to measure specific gravity. Serum electrolytes were essentially within

normal limits except for a BUN of 96 mgm.%.

The patient was immediately admitted to the University Hospital and initially treated for congestive failure by digitalization and salt restriction. Electrocardiogram revealed no evidence of myocardial infarction. Chest x-ray revealed evidence of cardiac failure and abdominal x-ray revealed no calcification or other abnormalities. During the first 24 hours of hospitalization, the patient's condition deteriorated rapidly. The total urinary output, despite adequate oral intake was 150 cc. Re-examination of the patient thirty hours after admission revealed an increase in the intensity of the abdominal bruit. A review of the available evidence suggested the diagnosis of aortic-vena caval fistula, probably due to a ruptured abdominal aortic aneurysm. Operation was carried out as an emergency thirty-six hours after admission because of clinical deterioration. With the patient under general anesthesia, the abdomen was opened in the midline from the xyphoid process to the symphysis pubis. A large arteriosclerotic aneurysm of the

terminal aorta was found and there was a prominent thrill in the vena cava maximal at a level just above the aortic bifurcation. Because of the patient's obesity and intense peri-aortic inflammatory reaction, dissection was unusually difficult. The iliac arteries were isolated and tapes passed around them. The aorta was then isolated beneath the renal arteries and was divided between the clamps after clamping the iliac arteries. As the aneurysm was removed, the fistula was controlled using Potts clamps on the vena cava. The fistula was approximately 3 cm. in length and was located about 2 cm. above the aortic bifurcation. The vena cava was repaired using -00000- arterial silk leaving a satisfactory lumen. A nylon bifurcation prosthesis (Tapp-Edwards) was then sutured in place and the aortic flow re-established to the iliac arteries. Appendectomy was performed before abdominal closure.

Postoperatively, the patient improved rapidly; the lungs cleared, blood pressure remained stable and urinary output increased, reaching 1000 cc. on the third postoperative day. The BUN slowly fell to normal by the seventh postoperative day. The abdominal venous distention disappeared, but edema of the lower extremities cleared more slowly and ankle edema was still present at the time of discharge. The patient's weight on admission was 214 pounds, decreasing to 180 pounds at discharge. Chest x-ray revealed a significant decrease in the size of heart postoperatively. The patient was ambulatory and gaining strength at the time of discharge, nineteen days following operation.

### Discussion

Aortic-caval fistulae have been reported occasionally for many years.<sup>1, 5, 6, 8, 9, 10, 11</sup> Most commonly they have been caused by trauma, surgical or otherwise. More recently, a number of cases of abdominal aortic-caval fistulae caused by rupture of arteriosclerotic aneurysms have been recorded.<sup>2, 3, 12, 14</sup> Though the total number of cases reported is small, it seems likely that a combination of an increasing aged population and increased awareness of this condition may result in more frequent early recognition of such cases.

Rupture of an expanding arteriosclerotic aneurysm into the vena cava apparently occurs by the same process that results in rupture into the abdominal cavity, retroperitoneal space or gastrointestinal tract. Because of the nature of the aortic wall at the site of the rupture, these communications tend to be larger than those encountered in fistulae due to trauma. As Eisman has suggested, this probably explains the fact that physiologic derangement following the development of a fistula due to aneurysm is particularly severe<sup>3</sup> and rapidly progressive.

The pathologic physiology of arteriovenous fistulae has received a great deal of attention and a detailed discussion is beyond the scope of this report.<sup>4, 7, 12</sup> Clinically, however, four recently reported cases with arteriovenous fistulae due to ruptured aortic aneurysms have presented a remarkably similar picture and the case described in this report represents a fifth.<sup>2, 3, 13, 14</sup> This group consists only of white males past fifty years of age. All of these patients complained of abdominal discomfort of a rather non-descript character for at least one month prior to the onset of acute symptoms. Only one was known to have an aneurysm prior to his acute illness. Each gave a history of swelling of the lower extremities, dyspnea and weakness. Progression of symptoms necessitated hospitalization in a maximum of four weeks in all patients. Physical examination in each case revealed evidence of cardiac failure, engorged veins in the anterior abdominal wall, massive edema of the lower extremities and trunk, and a loud bruit audible over the abdomen. A pulsatile abdominal mass was not always present. X-ray examination of the abdomen was helpful when calcium was visible. Aortography and venous catheterization were diagnostic in the one case in which each was tried.<sup>2, 3</sup> This group of cases then presented a similar, distinctive clinical picture which is not closely resembled by any other entity of which we are aware. Diagnosis in our case was unduly delayed by failure to recognize the significance of this combination of characteristic findings.

Operative treatment when the diagnosis was established consisted eventually of re-



section of the aneurysm, repair of the inferior vena cava and aortic replacement using a bifurcation prosthesis in all of the patients treated surgically. The immediate result in each patient operated on was good. One patient died six months postoperatively and the case reported herein has not been followed for a significant period of time. Without operation, it seems unlikely that any of these patients would have survived more than a few days.

### Summary

The case of a 65 year old man with an aortic caval fistula caused by rupture of an abdominal aortic aneurysm is reported.

This condition, though rare, presents an easily recognizable clinical picture consisting of a short history of swelling of the legs, dyspnea, weakness, and physical findings of heart failure, increased abdominal venous pattern, edema of the lower extremities and trunk, and a bruit audible over the abdomen.

Prompt recognition and surgical treatment has given good early results in reported cases.

### BIBLIOGRAPHY

1. Bigger, I. A.: Treatment of Traumatic Aneurysms and Arteriovenous Fistulas." *Archives of Surg.* 49: 170, 1944.

2. DeBakey, M. E., Cooley, D. A., Morris, G. C., Jr., and Collins, H.: "Arteriovenous Fistula Involving the Abdominal Aorta: Report of Four Cases with Successful Repair." *Annals of Surg.*, 147: 646, 1958.

3. Elsmann, B. and Hughes, R. H.: "Repair of an Abdominal Aortic Vena Cava Fistula Caused by Rupture of an Atherosclerotic Aneurysm." *Surg.*, 39: 498, 1956.

4. Ferguson, T. B., Gregg, D. E. and Shadle, O. W.: "Effect of Blood and Saline Infusion on Cardiac Performance in Normal Dogs and Dogs with Arteriovenous Fistulae." *Circ. Res.*, 2: 565, 1954.

5. Freeman, N. E., and Storck, A. H.: "Successful Suture of the Abdominal Aorta for Arteriovenous Fistula." *Surg.*, 21: 623, 1947.

6. Harbison, S. P.: "Major Vascular Complications of Intervertebral Disc Surgery." *Annals of Surg.*, 140: 342, 1954.

7. Holman, E.: "New Concepts in Surgery of the Vascular System." Springfield Ill., Charles C. Thomas, 1955.

8. Lehman, E. P.: "Spontaneous Arteriovenous Fistula Between the Abdominal Aorta and the Inferior Vena Cava." *Annals of Surg.*, 108: 694, 1938.

9. Linton, R. R., and White, P. D.: "Arteriovenous Fistula Between the Right Common Iliac Artery and the Inferior Vena Cava." *Archives of Surg.*, 50: 6, 1945.

10. Matas, R.: "Surgery of the Vascular System" in Keen, W. W.: "Surgery," Vol. 5: 290, Philadelphia, W. B. Saunders Co., 1910.

11. Pemberton, J. DeJ., Seefield, P. H. and Basher, N. W.: "Traumatic Arteriovenous Fistula Involving the Abdominal Aorta and the Inferior Vena Cava." *Annals of Surg.*, 123: 580, 1946.

12. Sabiston, D. C., Jr., Theilen, E. O., and Gregg, D. E.: "Physiologic Studies in Experimental High Output Cardiac Failure Produced by Aortic Caval Fistula." *Surgical Forum*, Vol. VI: 233, 1955.

13. Shumacker, H. B., Jr., and Jantz, J.: "Rupture of Abdominal Aorta into Inferior Vena Cava: Successful Surgical Repair." *American Surgeon*, 22: 1182, 1956.

14. Viar, William N. and Lombardo, T.: "Abdominal Aortic Aneurysm with Rupture into the Inferior Vena Cava." *Circulation*, 5: 287, 1952.

G. Rainey Williams, M.D.

800 N.E. 13th, Oklahoma City, Oklahoma

AMERICAN CANCER SOCIETY institutional grant committee announces the following awards: \$1,380 for the support of three Fleming scholars (highschool students) this summer at Oklahoma Medical Research foundation . . . \$1,120.95 to Doctor Walter L. Honska, Jr., resident in medicine at Veterans hospital, for studies of the nature of inhibitory effect of normal human and normal rat gastric juice on rat gastric mucosa . . . \$1,050 to Doctor William O. Smith, assistant professor of medicine and assistant chief, VA's radioisotope service, for research on experimental atrophic gastritis produced in dogs by preparation of human gastric juice.

## ABSTRACTS

### Serum Transaminase Patterns Following Intracardiac Surgery

DAVID D. SNYDER,\* CHRISTIAAN N. BARNARD,\*\* RICHARD L. VARCO,\*\* C. WALTON LILLIEHEI,\*\* and IRENE BOSSENMAIER.\*\*

Surgery, 44: 1083-1091, December, 1958

Thirty-three patients undergoing intracardiac surgery were followed with daily SGOT levels for one week. Twenty-eight patients had total body perfusions with open intracardiac procedures. Five additional patients having intracardiac procedures without perfusion served as controls. Although perfusion did not raise the SGOT concentrations in all patients, it seemed to be a contributing factor in most cases. However, the lowest value observed in the entire series was in a patient having total body perfusion. The patients with tetralogy of Fallot had greater post-operative levels than those with ventricular septal defects. This difference could be related to the physiologic and anatomic abnormalities peculiar to this malformation. SGOT values were greater in patients undergoing perfusion and ventriculotomy than those subjected to perfusion and nonventricular cardiomyotomies. Hepatic changes during perfusion are suggested as the major source of these increased SGOT values but obviously many other organs and tissues may contribute.

If SGOT levels can be regarded as a sensitive index of tissue integrity as has been suggested by numerous studies, then it may be concluded that a properly conducted total body perfusion with an efficient pump-oxygenator has maintained bodily homeostasis remarkable well during the temporary intervals studied.

\*Resident in Surgery.

\*\*Department of Surgery Variety Club Heart Hospital, University of Minnesota Medical School.

### Effect of Aortic Constriction on Experimental Atherosclerosis in Rabbits

DAVID D. SNYDER\* and GILBERT S. CAMPBELL.\*\*

Proceedings of the Society for Experimental Biology and Medicine 99: 563-564, 1958

Rabbits subjected to bilateral lumbar sympathectomy and fed a high cholesterol diet developed severe atherosclerosis in the lumbar aorta and iliac arteries. When an aortic constriction was concomitantly produced, atherogenesis distal to the constriction was diminished. This was accomplished by a decreased systolic and diastolic pressure, a diminished pulse pressure, and absence of visible aortic pulsation below the constriction.

\*Resident in Surgery.

\*\*Professor in Surgery.

### Response of the Blood Glucose to Glucocorticoids in Man

Determination of the Hyperglycemic Potencies of Glucocorticoids

KELLY M. WEST\* and DOROTHY ANTONIA WOOD\*\*

Diabetes, 8: 22-28, Jan.-Feb., 1959

Although the fasting blood glucose in man is not as responsive to the administration of glucocorticoids as is the blood glucose in the course of the intravenous glucose tolerance test, small elevations in fasting blood glucose were consistently produced under certain conditions by a single dose of a glucocorticoid. The magnitude of the hyperglycemia was variable from subject to subject but in each subject the magnitude of response produced by a single dose correlated well with the potency of the dose administered at certain levels of dosage.

Evidence is presented suggesting that the peak of hyperglycemic action of hydrocortisone occurs about six to eight hours after a dose is administered orally at a time when the peak of eosinopenic action has passed.

A simple method of determining the hyperglycemic potency of a glucocorticoid is described.

\*Instructor in Medicine.

\*\*Technical Assistant.

### Cardiac Rhythm as a Prerequisite for the Survival of Retal Heart Transplants

ALLAN A. KATZBERG\*

Plastic and Reconstructive Surgery and Transplantation Bulletin, 23: 113-115, 1959

Hearts excised from six day old chick embryos were implanted into the subcutaneous region of twelve day old chick embryos. Observations made on the implanted organ were observed through the coverslip window until the host hatched. Cardiac rhythm was retained in a number of the transplanted hearts. Anastomoses between the host's vascular system and the cardiac chambers of the implanted heart had formed. This was evident from the reddening during diastole followed by blanching during the systolic period of the cardiac cycle. A number of these transplants continued to function for some time after hatching. The majority of anastomoses developed at unfixed sites on the transplant although some were continuous with the main vessels leading to the cardiac chambers. Since degeneration of the implant was always preceded by cessation of pulsation, it may be that cardiac rhythm is a prerequisite for survival of the transplant.

\*Assistant Professor of Anatomy.

## Faculty Additions



SCHMIDT



HERBELIN

Newcomers to the University of Oklahoma School of Medicine include three physicians in the Department of Anesthesiology and one in the Department of Radiology.

Peter Joseph Welt, M.D., came here from Montreal, Canada, where he was a research fellow at Royal Victoria hospital, to join the faculty as assistant professor of anesthesiology.

German-born Doctor Welt received his M.D. degree in 1953 at the Free University of Berlin. He interned at St. Mary's Hospital in Montreal, then took his advanced training in anesthesiology at McGill university and Royal Victoria hospital.

His research has been concerned with the influence of anesthetics on the uterus in labor, neurophysiology-psychology of the first stage of anesthesia, and biophysical measurement of the depth of anesthesia.

Other new members of the anesthesiology department are Ray E. Curle, M.D., clinical assistant, and Joseph Ted Herbelin, M.D., junior clinical assistant.

A graduate of the University of Tennessee College of Medicine, Doctor Curle interned and served an anesthesiology residency at the University of Oklahoma hospitals. He was a fellow in inhalation therapy during 1957 and 1958.

Doctor Herbelin was graduated from the OU Medical School in 1954, interning at St. Joseph's hospital in Fort Worth. After two

## Department of Physiology Awarded Grant

National Heart Institute has awarded the Department of Physiology a \$120,000 training grant to increase teaching competence and research interest of undergraduate science instructors in cardiovascular physiology.

A. N. Taylor, Ph.D., chairman of the Department, will direct the training program which will be developed over a five year period.

The program is divided into two phases, both aimed at acquainting students of state colleges with career opportunities in medical science as well as helping their instructors strengthen teaching and research efforts.

First, college teachers will come to the Medical Center for an intensive, one month summer course in physiology of the heart and blood vessels. Twelve fellowships of \$600 are available this summer. The number eventually will be increased to 20.

Second, teams of Physiology staff members will go to state colleges in the fall to conduct on-campus teaching demonstrations and consultative conferences with teachers and students, making use of a mobile laboratory equipped with modern research instruments and materials.

In subsequent years it is expected participation will be open to undergraduate science teachers in neighboring states.

---

years in general practice, he returned to the Medical Center to take his residency in anesthesiology.

Helen Hughes Schmidt, M.D., also a graduate of the OU Medical School (class of '48), is a new clinical assistant in radiology. She took her internship and two years of residency training at the University hospitals and the third year at the Oklahoma City Veterans administration hospital.



In  
smooth  
muscle  
spasm...



- controls  
*stress*
- relieves  
*distress*

# Pro-Banthine<sup>®</sup> with Dartal<sup>®</sup>

**Pro-Banthine—**  
*unexcelled for relief of cholinergic spasm—*  
has been combined with

**Dartal—**  
*new, well-tolerated agent for stabilizing emotions—*  
to provide you with

**Pro-Banthine with Dartal—**  
for more specific control of functional gastrointestinal disorders, especially those aggravated by emotional tension.

**Specific Clinical Applications:** Functional gastrointestinal disturbances, pylorospasm, peptic ulcer, gastritis, spastic colon (irritable bowel), biliary dyskinesia.

**Dosage:** One tablet three times a day.

**Availability:** Aqua-colored tablets containing 15 mg. of Pro-Banthine (brand of propantheline bromide) and 5 mg. of Dartal (brand of thiopropazate dihydrochloride). G. D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

**SEARLE**

# PRESIDENT'S LETTER



" . . . In conformance with the A.M.A. action, the OSMA committees, already concerned with the problems of the aged, held a series of joint meetings in this regard. During these meetings, the joint group discussed a variety of alternate plans to meet the health cost problem for this age segment. Finally, the need for a cautious approach to this problem conflicted with the time element and it was decided that the proposal to this House of Delegates would be based upon certain principles rather than on the submission of a specific program.

The group, therefore, approved the following motion which it now respectfully offers for your consideration:

It is recommended:

1. That a service-type health insurance program be approved for the sixty-five and over age group.
2. That service benefits be offered to those whose income and net worth fall below approved ceilings, with \$6,000 as the suggested income ceiling.
3. That it be stipulated that the following points be taken into account in the development of such a service contract:
  - A. Physicians and hospitals are to be offered

the best possible fees, in keeping with a saleable premium.

- B. After allowing ninety days following the annual meeting for the development of the program, a special meeting of the House of Delegates will be called to ratify, reject or modify the proposal.

\* \* \* \* \*

At the conclusion of the report on Health Insurance for Senior Citizens, Doctor Gallaher asked the House for the disposition of the recommendations contained in the report.

Doctor Joe L. Duer, Woodward, moved that the recommendations contained in the report be adopted. This motion was duly seconded.

The speaker called for questions or further discussion, and reviewed the original motion of Doctor Duer's and a vote was taken.

The motion carried and the recommendations contained in the report of the Health Insurance for Senior Citizens were adopted as read.

This concluded the reports of the Association's Committees.

(Excerpts from the minutes of the 53rd annual session of the House of Delegates)

The above directions represent the most urgent, important, challenging and controversial responsibility that has confronted our profession and organization in a number of years. The seriousness and far reaching implications are such to deserve the most objective, unemotional and deliberate study on the part of each member of OSMA.

A handwritten signature in cursive script that reads "Alfred T. Baker M.D.".

ALFRED T. BAKER, M.D.  
President

## Cooperation Between The Attorney and The Physician

### A DOCTOR'S VIEWS

C. A. GALLAGHER, M.D.

**EVERYONE IS AWARE** that the medical evidence assumes a vital role in many fields of law. Having been interested in it a few years, I bring my remarks from that experience. The first thing to reveal at this time, I think, is that the trial procedures are often repulsive to physicians. They are accustomed in their offices and hospitals to making their own decisions and their own opinions. Their opinion is listened to with respect. The doctor in the courtroom is in a different position. He does not ask any questions, he doesn't have a chance to express himself freely, he is told when to talk, and he may have to answer questions that he thinks are distortions of the facts as he sees them. He may even find his intelligence and professional judgment challenged. So, you lawyers shouldn't wonder why many doctors dislike and even resent their role, which does come up whenever the doctor is a witness for you.

### Curative Things

There are curative things to do. It is unfair to your medical witness, and you may even jeopardize the rights of your client if you take medical evidence and present it without proper preparation and consultation. Ordinarily, when a patient comes to see the doctor, he tells the doctor the truth—provided he is ill and his interest is to get well. That is the only interest he has and that is a reliable history. We are faced with another problem. When a suitor for damages comes in, he may not give the doctor the entire history at all and might even tell a lie to help himself. To help this, I recommend that you, the lawyers, furnish the doctor all of the story you possess at that time.

The lawyer should know the doctor's side of the medical problem and yet explain to him the propositions that will come up in court and the propositions which he may be



cross-examined upon. If the doctor is not prepared for the things he will hear on cross-examination, he may destroy his effectiveness in the case. The trial lawyer should consult with the doctor before a hearing comes up, so that the doctor will have a chance to find out all the questions he can that both sides will ask. The doctor can sometimes help the lawyer by being permitted to tell the strong and weak portions of a case, medically, so the lawyer can play down or impress certain features of the case upon the jury.

### **Consultations**

Now we come to what I think is the biggest source of lack of cooperation between the two professions. When a consultation is required, arrange it at a time when the doctor can take the time with you and actually help you with a lengthy consultation. Don't just stop in the office and expect him to have time. The second thing, whenever you do have the consultation, expect to pay the doctor for that time spent. On the other hand, the doctor must realize that the lawyer is busy too and he should make every effort to be present at the scheduled place and be on time. To waste another person's time is a discourteous act.

If the case is settled or removed from the docket after you have had the consultation and told the doctor what time and where to be, be sure and let the doctor know. Just lately, after an interesting and helpful consultation, I was told to be in a certain town at 11:00 a.m. I was there, but a different trial was going on when I walked in. I went back over to the lawyer's office and the lawyer's secretary said: "we settled that case yesterday afternoon." There I was, another hour and a half away from my office.

Tell the doctor what theories you intend to pursue and what theories you expect to be confronted with. If there are medical terms involved, let him help you with the pronunciation of the word or the meaning of the word or the anatomy or function of the part of the body involved in the particular case. Perhaps the best single thing to do is buy a medical dictionary, because that will help you pick up those words quickly and correctly. Yet, the doctor may have

a different feeling in mind when he uses a certain set of words and you really should know what a doctor is going to say and mean before you ask him any questions in court.

### **Teach the Doctor**

Doctors have to be taught a few things too. Most of us use too many medical words and too lengthy a discussion. Impress upon the doctor that he is there to impress the jury and urge that he use simple words if possible. If the jury does not understand what he has said, then his effort is wasted. Therefore, if the doctor comes to the stand knowing what he is up against and how to meet it, he will make a better witness for you, the jury is more likely to "buy" his testimony, and you are more likely to win your case.

One of the most important and most widely misunderstood feature of the doctor's association with lawyers has to do with billing. The doctor should present a bill as soon as possible after the examination is completed and a report is rendered. This does not indicate that the bill should be paid at that time, for it is a usual practice to wait until a case is settled, however long it may be, before the medical bills are payable.

### **If Case Is Settled**

On the other hand, many cases are settled without a trial. Whenever a case is settled, then that is the time to have all the bills immediately available, lest the judgment be divided and the patient gone, when a bill or two appears. This then leaves the lawyer in a bad position for he would have been much better off with the bills present. It is very difficult for a lawyer to get back any of the money and the claimants in general do not pay the doctor at all. If, at the end of a hearing, you say to the client, "you owe Doctor Gallagher so many dollars," and expect him to come up here and pay it, he will not.

Remember, that you as a lawyer have contracted for the medical examinations and evidence. You should hold back the amount of money to pay these medical costs yourself and see that they are paid. The claimants will not do this and we look to you for these payments.

## A LAWYER'S VIEWS

WILLIAM R. SAIED

THERE IS considerable misunderstanding between the two professions. This is due in part to a lack of understanding by each of the other profession.

An article appeared a short time ago in a metropolitan newspaper headed "Doctors Told How to Match Tricks of Lawyers in Trials" and quoted from a speech made by a man who is apparently a well-known, competent doctor who said that he spoke on the basis of "20 years" personal experience on the witness stand as an "expert" at the hands of attorneys. His talk, according to to the article, was entitled "When the Doctor Goes to Court." The following was quoted in the article as being part of his speech:

"If the truth was all that was sought there would be no need for lawyers at all. The opposing lawyer is in court for the sole purpose of making money. The lawyers' business is cunning. The attorney is bluffing, from start to finish. He is the Brooklyn cowboy with the blank cartridges. When the lawyer goes into a Clarence Darrow act, employ trick for trick, cunning for cunning."

This doctor shows a definite lack of understanding of the legal profession. He had had a bad courtroom experience due, no doubt, to a lack of cooperation on the part of both doctor and lawyer. Though he claimed to have had 20 years of experience on the witness stand one would hesitate to use him as a witness regardless of his medical qualifications. We are fortunate, in Oklahoma, in having medical experts who are well qualified and with whom we can cooperate.

### Areas for Cooperation

Cooperation between the physician and attorney applies to all types of cases involving the medical witness, whether it be damage suits, compensation or criminal. Many cases

are lost because of the lack of preparation and not on the merits of the case. This is especially true in a case where medical evidence is of prime importance. Permit me to give a few useful hints on how the attorney and doctor should cooperate in preparing for trial.

When Mr. Client walks into your office it is absolutely necessary that you obtain a *true* and *correct* history of his physical and mental condition and a true and correct account of *how* the injuries were sustained. You, as the attorney, must have the true facts, first, to decide if you want to handle the case and, second, to prepare for trial if you accept employment.

After getting the true facts you will be in a better position to select the proper doctor to examine the client. The attorney who sends all clients to the same doctor for all types of cases makes a mistake. A qualified orthopedic surgeon may be excellent in his field but may be inept at examining and testifying on internal injuries. Of course, there is the doctor who has an "Industrial Practice" and normally handles all types of injuries. This man is, usually, a good general practitioner who qualifies by experience for most assignments. Attorneys at times get judgments much less than they should because the plaintiff's attorney used a physician, qualified in one particular field, to testify concerning injuries completely unrelated to his specialty. Moreover, it is well to remember that a good trial attorney who has prepared his case can discredit the best specialist on cross-examination if that specialist is testifying about injuries unrelated to his specialty.

### The Medical Examination

The importance of Mr. Client giving the doctor a complete history must be impressed



upon him. No doctor should be hampered with a false history of the accident or of false symptoms. Your adversary will have the true facts so why not beat him to the punch? Remember, always, that your adversary can be, and probably is, just as smart as you are at preparing his case. Never sell him short.

After the medical examination has been completed it would be well for the attorney and the doctor to have a conference so that the attorney will be advised of the doctor's findings. If the doctor does not have the time to discuss the case, then he should not be used. After all, this matter of cooperation is a two-way street. Do not under any circumstances try to change the doctor's opinion. One can, and in fact should, inform the doctor of the problem so the doctor can prepare the attorney with the proper questions to be asked and, also, to inform the attorney of the many ramifications of the medical side of the case so he can pick up the broken pieces after his adversary finishes his cross-examination. A doctor who will change with the wind can be easily discredited by the skillful cross-examiner, but the doctor who testifies as to his honest opinion will have a sound foundation for his beliefs and will weather the storm of cross-examination.

When you receive the written report of the doctor, study it carefully. Here is where your medical dictionary and textbook of medicine come in handy. Every medical term should be checked for meaning. As in many English words and phrases there will often be a double meaning to a certain medical word. Oftentimes the best attorneys can be trapped by not using the dictionary.

The attorney owes a definite duty to the doctor to protect him from liability. An authorization signed by your client and addressed to the doctor (or clinic) should be prepared by the attorney and given to the doctor. With this in his files the doctor can discuss the case freely with you.

#### **When Can a Doctor Tell?**

A doctor has three things to think about before he gives out any information and the

attorney should know what they are. One, when *may* he tell; Two, when *should* he tell; and Three, when *must* he tell. This covers a lot of ground, however, the answers can be briefly stated thus: One, he *may* tell when he has authorization from his patient but only to the person, or persons, authorized to receive the information; two, he *should* tell when the life of the patient is endangered or when the health or life of the patient depends on others, but only to those persons affected (usually the family) or who can help, and three, he *must* tell in all cases where a crime has been committed or one is suspected, such as bullet wounds.

Hippocrates' Oath, on which medical ethics are founded, contains the following:

"Whatsoever things I see or hear concerning the life of men, in my attendance on the sick or even apart therefrom, which ought not to be noised abroad, I will keep silence thereon, counting such things to be sacred secrets."

In the Principles of Medical Ethics of the American Medical Association are the following:

"The confidences . . . should be held as a trust and should never be revealed except when imperatively required by the laws of the State."

In the Canons of Professional Ethics adopted by the American Bar Association we find that "It is the duty of a lawyer to preserve his client's confidences." In both professions there is a duty to keep the confidences of the client or patient; however, since both are working toward the same end then they must work together.

#### **Cross-Examination**

In the actual trial of a case the attorney can, usually, question his own doctor properly after proper preparation and consultation. But what about cross-examination of the medical expert. Of course the cardinal rule is: "Don't cross-examine!" But sometimes it is necessary to do so. Here again, the pre-trial conference with the doctor is



important because he can advise you of the many ramifications which could arise and help you prepare for cross-examination. If you don't know how the witness will answer your questions when cross-examination is dangerous. Some attorneys have won cases, not on their own presentation of facts, but on the cross-examination of their adversary.

In this connection you should know as much about the doctor you are about to cross-examine as you can learn. His qualifications, personality, integrity, etc. Is he a professional testifier? Oftentimes one can know in advance what the doctor will testify to before he takes the stand. In the trial of one industrial death claim involving \$13,500.00 or nothing, for example, the claimant's attorney put a highly competent heart specialist on the stand and made a rather substantial case for the claimant. The doctor's qualifications were known and, among other things, it was known that he belonged to a small, select organization of heart specialists. The doctor had to be a man of unquestioned integrity and well qualified to be a member of this group. By a few simple questions prepared in advance by another heart specialist, the adversary turned this witness into a good witness for his case and consequently won. The doctor's excellent qualifications, incidentally, were brought out on cross-examination.

### Fees

No talk on the cooperation between the attorney and physician would be complete without a discussion of fees. Fees naturally, cause misunderstanding. The doctor examines your client for only one reason—to make a living for his family. Talk to your doctor about the fee before you ever send the client to be examined, however, do not expect him to give you a definite figure. As lawyers, we know it is difficult always to

set a fee and say "this is it." If required to state a definite amount it may be high to cover any possible special examination which may arise. The doctor can, and should, give figures within certain limits to cover cost of special x-rays or laboratory work.

Unlike lawyers, who must wait until the case is completed and judgment paid, the doctor expects his bill paid the first of the month. Most doctors, however, who do much medical-legal practice understand the situation and are willing to wait a reasonable length of time to be paid and often, even until the case is completed. You should discuss with the doctor and have a definite agreement as to the manner of paying fees.

The doctor always holds the attorney responsible for payment of his bill, and rightly so. It is with the lawyer he contracted for the examination not the client. The doctor should send you a statement immediately after the examination or treatment so you will have it in your file. Thus, when you settle the case and give the client his money you will have the statement before you and can make the proper deduction to pay the doctor. *Never let the client pay the doctor.* This responsibility lies with the attorney. If the client should not pay the medical bill you are stuck with it, and we all know Mr. Client will not pay back anything to the lawyer.

Both law and medicine require years of study. The two professions are in no way similar. You be the lawyer, let the doctor be the doctor. Do not tell him how to run his business and do not permit him to tell you how to run yours. In both professions a service is being rendered to Mr. Client and for that service both attorney and physician expect to be paid.

—Reprinted through the permission of *The Journal of the Oklahoma Bar Association.*

# Organization News



Clinton Gallaher, M.D., Speaker of the House, presides at the Sunday afternoon session of the House of Delegates.

## Proceedings of the 53rd Annual Session of the House of Delegates of the Oklahoma State Medical Association, April 19, 1959

### OPENING SESSION

The 53rd Annual Session of the House of Delegates of the Oklahoma State Medical Association was called to order at 10:00 a.m., Sunday, April 19, 1959, in the Emerald Room of the Mayo Hotel, Tulsa, Oklahoma, by the Speaker of the House of Delegates, Clinton Gallaher, M.D., Shawnee.

Doctor Charles E. Green, Lawton, gave the invocation.

The Speaker announced the appointment of the following working committees of the House of Delegates:

#### Credentials Committee

C. Riley Strong, M.D., El Reno (Chairman)  
Hugh Perry, M.D., 222 E. 5th, Tulsa  
Ollie McBride, M.D., Ada

#### Resolutions Committee

C. M. Hodgson, M.D., Kingfisher (Chairman)  
Mark R. Johnson, M.D., Oklahoma City  
J. W. Murphree, M.D., Ponca City  
Charles E. Wilbanks, M.D., Tulsa  
Kenneth L. Wright, M.D., Ardmore  
Ross Deputy, M.D., Clinton

#### Sergeants at Arms

William W. Cotton, M.D., Poteau  
Paul Kernek, M.D., Holdenville

#### Tellers

C. C. Young, M.D., Shawnee  
M. E. Robberson, M.D., Wynnewood  
Lynn Harrison, M.D., Oklahoma City  
T. E. Rhea, M.D., Idabel

#### Constitution and By-Laws

William T. Gill, M.D., Ada (Chairman)  
Marshall O. Hart, M.D., Tulsa  
Vernon D. Cushing, M.D., Oklahoma City

#### Parliamentarian

William T. Gill, M.D., Ada

Doctor Gallaher announced that Doctor Gunnar Gundersen, President of the American Medical Association was going to address the group during the opening session: and would be present as soon as his appearance before the Medical Assistants' Group was completed.

(Continued on Page 413)



## Oklahoman to Serve on White House Conference Committee

Hayden H. Donahue, M.D., Director of Mental Health for Oklahoma and chairman of the Oklahoma State Medical Association's Committee on Aging, has been named by the Secretary of Health Education and Welfare, Arthur S. Flemming, to serve on the National Advisory Committee for the White House Conference on Aging. As a member of the committee, he will assist in formulating plans for the conduct of the national meeting.

The conference, which will be held in Washington in January, 1961, resulted from an act of Congress which was signed by the President on September 2, 1958. In its declaration of policy, the act admits that primary responsibility for meeting the challenge and problems of aging is that of states and communities, but further states that all levels of government must share the responsibility. Under the provisions of the act, Congress will work jointly with the states to develop recommendations and plans for action which will serve the purpose of:

1. Assuring middle-aged and older persons equal opportunity with others to engage in gainful employment which they are capable of performing, thereby gaining for our economy the benefits of their skills, experience, and productive capacities.

2. Enabling retired persons to enjoy incomes sufficient for health and for participation in family and community life as self-respecting citizens.

3. Providing housing suited to the needs of older persons and at prices they can afford to pay.

4. Assisting middle-aged and older persons to make the preparation, develop skills and interests, and find social contacts which will make the gift of added years of life a period of reward and satisfaction and avoid unnecessary social costs of premature deterioration and disability.

5. Stepping up research designed to relieve old age of its burdens of sickness, mental breakdown, and social ostracism.

The Congress has stated the intention that all programs developed during the conference would place emphasis upon the right and obligation of older persons to free choice and self-help in planning their own futures.

## Turner Takes Top Post In Nuclear Society

Henry H. Turner, M.D., was installed as President of the National Society of Nuclear Medicine during ceremonies held June 19 at the Palmer House, Chicago. Doctor Turner was elected to the office of President-Elect last spring at the society's annual meeting in Los Angeles. In addition to taking the reins of the group, he was also a program participant.

As President of the group, he will head a world-wide membership of over 1,200 physicians, dentists, engineers and scientists who represent all areas of the United States as well as eight foreign countries. The purpose of the organization is to develop and exchange scientific information in the field of nuclear medicine and to promote research and clarify understanding of related problems.

Well-known in organized medicine, Doctor Turner's leadership ability has often been recognized by other scientific groups. A former president of the Oklahoma State Medical Association, he is currently serving as Secretary-Treasurer of the American Endocrine Society and as Associate Editor of the *Cyclopedia of Medicine*, in charge of endocrinology. In 1960, he will attend the International Congress of Endocrinology, Copenhagen, where he will function as a member of the Financial Committee.

Among past honors, Doctor Turner is a former member of the Council of the Southern Medical Association and has held the presidency of the American Therapeutic Society and the vice-presidency of the American Goiter Society.



## National SAMA Elects Two Oklahomans



Two of the newly elected officers of the National SAMA are pictured above. Mrs. W. Stanley Muenzler is the Auxiliary President and William R. Kirkham, Ph.D., will be President for the coming year.

Delegates from the University of Oklahoma Medical School chapter of the Student American Medical Association and Auxiliary captured the two top national SAMA offices at the ninth annual meeting April 30-May 3 in Chicago.

William R. Kirkham, Ph.D., a third year medical student from Stillwater, was elected SAMA president. Mrs. W. Stanley Muenzler, whose husband also is a junior student, was named auxiliary chief. Both took office at the close of the session.

In addition, Mrs. Rex T. Baggett, wife of a first year student, won a regional director post. The Muenzlers and the Baggetts are from Oklahoma City. Mrs. Muenzler is an elementary teacher in the Oklahoma City public schools.

The new SAMA president received his Ph.D. in biochemistry at the University of Missouri in 1952. He taught biochemistry at Oklahoma State University for two years before enrolling in medical school.

Doctor Kirkham served as national treasurer last year. Another Oklahoma delegate who held national office last year was Edward N. Brandt Jr., junior from Marietta, who was chairman of the Committee on

## Graduate Education.

Eight students and three auxiliary members represented the OU chapter at the Chicago sessions. The size of the Oklahoma delegation reflects an upsurge of interest here in SAMA activities. The chapter distributes administrative duties among all classes, thus encouraging students to continue active participation throughout their medical schooling, Melvyn L. Brill, new chapter president, explained.

Brill said it was decided in open committee meeting that the function or role of SAMA—should it be a professional service or a student government organization?—should be left to the local chapter.

OU's chapter considers its function to be strictly one of professional service, "introducing students to the problems of organized medicine," Brill said.

Brill is a sophomore from Lawton. Others attending the meeting were: Herschel L. Douglas, junior from Sulphur and immediate past president of the chapter; Baggett, vice-president; Bob Eaton, third year student from Weatherford and new secretary-treasurer; James Funnell, junior from San Diego; Jerry B. Blankenship, freshman from Frederick; and Mrs. Douglas.

Another Oklahoman present was Mrs. Troy Bohannon, Tulsa, wife of a Hillcrest Hospital intern and member of the Hillcrest auxiliary.

## Radiological Society Elects Officers

The Oklahoma State Radiological Society met in Tulsa on April 19, 1959 at the Mayo Hotel. Guest speaker for the meeting was Doc C. Weir, M.D., Associate Professor of Radiology, St. Louis University School of Medicine, whose topic was Injuries of the Cervical Spine. Following his presentation, there was a film reading session.

Newly elected officers for the group are: E. H. Kalmon, M.D., Oklahoma City, President; J. R. Danstrom, M.D., Oklahoma City, Vice-President; J. Murphree, M.D., Ponca City, Secretary and V. M. Lockard, M.D., Bartlesville, Treasurer.

## State Science Academy Receives \$30,600 Grant to Aid Education

Oklahoma's grass-roots program to improve science education through community action groups received a substantial boost recently with the announcement at the annual spring meeting of the Oklahoma Academy of Science at Camp Egan near Tahlequah of a \$30,600 grant from the National Science Foundation in Washington.

Official news of the grant came in a letter from Dr. Alan T. Waterman, NSF director, to Doctor Elmer L. Lucas, president and Doctor J. Teague Self, permanent secretary, of the Oklahoma Academy. Both are University of Oklahoma faculty members.

The Academy, as a coordinating agency, was joined in applying for the grant by the Oklahoma State Medical Association, the Oklahoma Society of Professional Engineers, the Oklahoma State Regents for Higher Education, and the Frontiers of Science Foundation of Oklahoma, Inc., with the support of 12 state colleges and universities.

The funds from the national foundation will support a year-long project to provide consultative service to community action groups in cities throughout the state in evaluating and strengthening education in science and mathematics in their local schools and through adult education and community-wide activities.

Application was made to the National Science Foundation for support funds by the Academy in February following its participation with the Frontiers of Science Foundation in its "Science Joins the 3 R's" program earlier this year.

Under the terms of the grant, consultative service by qualified professional scientists and engineers from colleges and universities in Oklahoma and from throughout the nation, as well as from business and industry, will be made available to cities who request it.

The program will be under the direction of Doctor Self, and will be administered in cooperation with, and through the offices of, the Frontiers of Science Foundation of Okla-

home, Inc., in Oklahoma City. A field secretary will be appointed soon.

Selection of consulting scientists will be made by the Field Secretary and a steering committee in collaboration with an advisory committee.

Members of the steering committee include Doctor Self, Richard Graham, executive secretary of the Oklahoma Medical Association; M. A. Woodbury, executive secretary of the Oklahoma Society of Professional Engineers; Doctor James G. Harlow, executive vice-president of the Frontiers of Science Foundation and Thomas G. Sexton, administrative assistant to the Oklahoma State Regents for Higher Education.

The advisory committee includes, in addition to members of the steering committee, Doctor Ernest M. Hodnett, Doctor Roy W. Jones, Doctor David B. Kitts, Doctor Elroy L. Rice and Doctor Lucas.

The 12 cooperating colleges will make available equipment essential to the successful operation of the program, and along with the medical association and the professional engineers will lend technical services necessary to the organization and operation of the consultative service.

Colleges participating include Central State College, Edmond; East Central State College, Ada; Northwestern State College, Alva; Northeastern State College, Tahlequah; Oklahoma Baptist University, Shawnee; Panhandle A. & M. College, Goodwell; Southeastern State College, Durant; Southwestern State College, Weatherford; Phillips University, Enid; Tulsa University; Oklahoma State University and the University of Oklahoma.

The community action program was launched by the Frontiers of Science Foundation at a state-wide symposium in January titled "Closing the Gap in Education." This meeting stressed new targets for education, descriptions of some of the gaps in education, and mobilizing community resources for closing the gaps.

More than 900 persons representing 92 cities and towns attended. To date more



than 125 communities have expressed interest in developing local action groups, more than 80 of which are expected to be organized and operating before the end of the summer.

Community groups may work on school programs, adult programs, or community-wide programs. Success of the activity in each town will be greatly accelerated through the on-the-spot detailed and competent consultative services which will be available under the support grant without cost to the individual community.

Organization of action groups under the framework of the Frontiers of Science Foundation program, is through individual leaders concerned with education and community improvement in the various cities. These include bankers, school superintendents, chamber of commerce officials, physicians and dentists, engineers, newspaper editors, P-TA officers and members, school board members and other civic leaders.

Doctor Self emphasized that cities desiring to obtain the top-flight professional consultative services must organize their own groups and request aid in analyzing, evaluating and arriving at solutions to their local problems.

"This is one of the most forward looking programs in the nation," Doctor Self said, "and it puts Oklahoma in a splendid position to achieve significant results by attacking problems in our educational structure at the level where citizens can be most effective—at home.

"We are grateful that the National Science Foundation shares the enthusiasm of the Oklahoma Academy of Science and the other participating agencies who joined in applying for this grant. The expert assistance we will be able to provide under the terms of this grant will make the program meaningful and fruitful."

Doctor Self said that community action groups desiring advice and counsel should apply through the Frontiers of Science Foundation office, 1201 Republic Building, Oklahoma City.

## Army Reserve Hospital Activated in Oklahoma



Colonel Robert Johnson, Chief of the Oklahoma Military District, pictured right, is shown presenting activation orders for Oklahoma's first U.S. Army Reserve Hospital to Colonel Hervey A. Foerster, M.C.

Oklahoma's first U. S. Army Reserve Hospital was activated April 1, 1959, when Colonel Robert Johnson, Chief of the Oklahoma Military District, presented the activation orders to Colonel Hervey A. Foerster, M.C. This unit, the 44th Evacuation Hospital, is a 400 bed, tent hospital and will consist of 32 officers, 30 nurses and four warrant officers and 152 enlisted men.

At the present time there are 18 medical officers, five nurses and four warrant officers and 102 enlisted men. The unit meets each Wednesday night at the U. S. Army Reserve Armory at 36th and Eastern. Several doctors living outside of Oklahoma City belong to the unit and attend drill sessions at their home cities.

There are openings in the unit for a number of reserve nurses and medical officers. The unit will train this summer at Fort Hood, Texas.

Colonel Foerster has been a reserve officer for 32 years and is Clinical Professor of Dermatology at the University of Oklahoma. At the organizational ceremony, a congratulatory telegram from Doctor E. C. Mohler, President of the Oklahoma State Medical Association, was read and Doctor C. M. Bielstein, President of the Oklahoma County Medical Society, attended. Also present were representatives of the Chamber of Commerce, Oklahoma County Red Cross Chapter and other dignitaries.





### **L. J. Spickard, M.D., Honored**

L. J. Spickard, M.D. (third from the left), a practicing physician in Okemah since 1922, was recently honored by his fellow-physicians for a half-century of work in the medical profession. Looking on as Dick Graham, Executive Secretary, Oklahoma State Medi-

### **Urological Association Offers Essay Prizes**

The American Urological Association is offering an annual award of \$1000 (first prize of \$500, second prize \$300 and third prize \$200) for essays on the result of some clinical or laboratory research in Urology. Competition is limited to Urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in Urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Palmer House, Chicago, Illinois, May 16-19, 1960.

For details concerning the contest, write to Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be sent to the secretary before December 1, 1959.

cal Association, pins a Fifty-Year Pin on Doctor Spickard's lapel are William Haynes, M.D. (left), President of the Okmulgee County Medical Society and M. L. Whitney, M.D., President of the Okfuskee County Medical Society.

The presentation was made to Doctor Spickard during a joint meeting of the Okmulgee and Okfuskee County Societies held in Okmulgee. Eleven members of the two societies attended the meeting and special guests were William Pratt, M.D., C. H. Day, M.D., and H. A. Vinson, M.D., all of Tulsa.

Born in Kentucky in 1882, Doctor Spickard graduated from the University of Louisville in 1908. He entered practice in Louisville and remained there until 1922 when he moved to Okemah to establish his home and practice.



## Merrifield Doctors Center Opened in Ponca City

The new Merrifield Doctors Center, 111 Patton Drive, Ponca City, was formally opened April 5, 1959. Opening offices in the new center were V. C. Merrifield, M.D., L. L. Merrifield, D.D.S., owners of the building, John Berry Gilbert, M.D., John W. Burrow, D.D.S., and Jimmie Fuller, D.D.S.

Situated on a one and one-half acre tract, the split-level, masonry building was designed so that patients can park on the same level as the offices. Of contemporary-Spanish architecture, the structure has approximately 7,800 square feet of floor space. Red velour brick is the principal building material. The face of the building has ornamental areas on either side, backed by a glass wall.

All offices contain modernistic furnishings and interior decorations. Heavily-traveled areas of the floor are all of pre-cast Terrazo stone from Mexico. The center

is equipped for high fidelity music and is completely air-conditioned.

Each physician has his own lounge, business office, private office and nurse's station. Treatment rooms, recovery rooms, x-ray and laboratory facilities will be used jointly.

The orthodontic, suite, occupied by Doctor Laverne Merrifield, has a business office, laboratory and three treatment rooms, one of which overlooks an enclosed garden.

Other dental suites contain a private office, laboratory, reception room, business office and three operating rooms for each dentist.

Architects for the building were Caudill, Rowlett and Scott and Associates, Oklahoma City. Building contractor was the Tatge Construction Company of Norman.



## Book Review

**THE CEREBROSPINAL FLUID: PRODUCTION, CIRCULATION AND ABSORPTION:** Ciba Foundation Symposium, G. E. W. Wolstenholme and C. M. O'Connors, Editors; Little, Brown and Company, Boston, 1958, pg. 336. Price \$9.00.

This Ciba Symposium records the proceedings of a meeting conducted in London in May 1957 to discuss the cerebrospinal fluid. Twenty-five well-known investigators participated in this symposium.

The presentations may be grouped into the fields of anatomy, physiology and clinical medicine. Those relating to anatomy are comprehensive and discuss in fine detail the embryology and developmental relationships, the structure and function of the arachnoid granulation, the choroid plexus. The results of studies of the choroid plexus by electron microscopy are particularly good and are well illustrated with excellent photographs. The portions concerning the physiology of the spinal fluid do not measure up to those of the other two fields. One gets the impression that comparatively few advances, despite the advent of isotopic techniques, have been made since the fundamental studies of Weed in this field. The section concerning spinal fluid barriers in bilirubinemia is particularly timely, however.

The several papers relating to the clinical aspects of spinal fluid physiology are quite pertinent and provide valuable information concerning the clinical physiology and abnormalities of the spinal fluid in pathological states. Possible mechanisms of hydrocephalus and problems of experimental spinal anesthesia are well covered.

The value of the book is enhanced by the inclusions of a discussion section at the end of each chapter. This publication represents a comprehensive compilation of basic facts concerning the cerebrospinal fluid. It can be recommended as a reference work for anyone interested in any of the many aspects of this subject.—*Harris D. Riley, Jr., M.D.*

## Coming Meetings

Oklahoma Chapter  
**AMERICAN ACADEMY OF GENERAL PRACTICE**  
September 13, 1959 Lake Murray Lodge  
Ardmore, Oklahoma

The Sixth Annual Meeting of the Red River Valley Section, Oklahoma Chapter, American Academy of General Practice, will be held at Lake Murray Lodge, Ardmore, September 13, 1959. Participants will receive four hours credit, Category 1. For further details, write to Roger Reid, M.D., 1001 15th, N.W., Ardmore, Oklahoma.

**OKLAHOMA ACADEMY OF GENERAL PRACTICE SYMPOSIUM**  
October 2, 1959 Skirvin Hotel  
Oklahoma City

The Oklahoma Academy of General Practice, the University of Oklahoma Medical Center and Lederle Laboratories will present a Symposium on "Medical and Surgical Problems in the Senior Citizen," to be held October 2, 1959 in the Skirvin Hotel, Oklahoma City. Further information may be obtained by writing to Nolen Armstrong, M.D., President, Oklahoma City District, A.A.G.P., 2925 N.W. 50th, Oklahoma City, Oklahoma.

13th ANNUAL  
**ROCKY MOUNTAIN CANCER CONFERENCE**  
July 22-23, 1959 Brown Palace Hotel  
Denver, Colorado

The Rocky Mountain Cancer Conference will be held at the air conditioned Brown Palace Hotel in Denver, July 22 and 23, 1959. Further information concerning the program and reservations may be obtained from Rocky Mountain Cancer Conference, 835 Republic Building, Denver 2, Colorado.

24th Annual Congress  
**INTERNATIONAL COLLEGE OF SURGEONS**  
September 13-17, 1959 Chicago

The 24th Annual Congress of the North American Federation, International College of Surgeons, will be held in Chicago, September 13-17. The federation is composed of the United States, Canadian, Mexican, and Central American Sections. For information, write to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.



25 YEARS  
AGO



Articles published in *The Journal* of the Oklahoma State Medical Association June, 1934.

### Pediatrics of the Future

Carroll M. Pounders, M.D., Oklahoma City

In the tendency towards socialization of medicine, pediatrics has gone farther than any other branch. The various child health centers, well baby clinics, child guidance clinics and such-like, have taken care of a large volume of the work. Philanthropists and legislators have tried to outdo each other in the interest of the child. The wholesale free immunization of children against communicable diseases has made great inroads into our work. Through our educational campaigns enough knowledge about preventive pediatrics, infant feeding and immunization against contagion has been disseminated among the profession generally, so that they have come to feel more able to take care of their own pediatrics. Consultations are much fewer than formerly. The obstetricians continue to look after their babies in many instances. These and many other factors have contributed to considerable change in the status of the pediatrician. One hears little that is optimistic but much of pessimism among his colleagues in this work.

Now, is this atmosphere of gloom and pessimism justified? Is there no longer any need for specialists in pediatrics? Is not our existence justified by our past accomplishments? I believe that there is just as great a field for the pediatrician today as there has ever been; in fact, much greater. I believe that we can generally blame ourselves for not keeping in step with changing conditions and making our services available to more people. We must become specialists in pediatrics and not in the diseases of children. We can no longer justify our existence by simply trying to apply the practice of adult medicine to infancy and childhood. One does not have to be extraordinarily observing to see that there has been a great change in the type of service required of us today. While such common worries as summer diarrhea, pneumonia, pyelitis, upper respiratory infections and the like are still with us and probably will continue to be as long as we practice medicine, still they play no such prominent parts in our daily routine as they once did. Today our job consists more

## Have You Heard?

On May 12, GERALD ROGERS, M.D., was guest speaker for the Annual Lecture and Formal Dinner of the Los Angeles County Obstetrical and Gynecological Society. Topic for Doctor Roger's lecture was "Twenty-Five Consecutive Cures of Post-operative Vesicovaginal Fistulae." During the meeting Doctor Rogers was elected an Honorary Fellow of the Society.

G. R. RUSSELL, M.D., Tulsa, has been appointed a member of the Health Scholarship Committee of the National Foundation.

At its April 19 Annual Meeting, the Oklahoma Chapter of the American Psychiatric Association elected GEORGE GUTHREY, M.D. to the presidency and named HAYDEN H. DONAHUE, M.D. as president-elect and JAY T. SHURLEY, M.D. as secretary-treasurer.

---

in supervising the feeding during the first few years so as to produce the best possible physical growth and development; of the application of the means which are at our disposal for preventing infectious diseases; and of the guiding and assisting parents in bringing up children according to the best principles of mental hygiene so that they will be efficient members of society. The thing which I mentioned last is today by far the most important of all. We have been doing a fairly satisfactory job in the field of nutrition. Most of our infants are much above the standard tables for height and weight that were put out a few years ago. We have almost eliminated diphtheria and some of the other dread diseases—(although one must admit that there is much more to be done yet in the field of preventive medicine). But we must confess that our accomplishments in the field of mental hygiene up to now are nothing to stir our pride. Children are growing up with all sorts of abnormal mental reactions and mal-adjustments that make it impossible for them to fit properly into the community and become happy, efficient members of society. That is our problem, and it is our job to set about correcting such a situation. It is far from simple and easy, but we cannot possibly shirk or sidestep it if we are going to continue to justify our existence as specialists in a particular branch of medicine.

# Auxiliary News

## Fifty-Third Year of Auxiliary

With the Post-Convention School of Instruction on Tuesday, April 21st, 1959, we are entering our fifty-third year of Auxiliary activities. It brings with it the satisfaction of the privilege of being a doctor's wife. She is among the most fortunate of women because she shares in the life and work of a man who is motivated by the highest ideals. She is in the heart of each family at the beginning of life and at the passing. She, indeed, is privileged! Our past presidents, officers and committee chairmen have worked together faithfully and untiringly to achieve the fine accomplishments our State Medical Auxiliary represents today. To all of them—we pay a special tribute.

## Service to the Community

One of the first objects for which the Woman's Auxiliary was organized was to assist the American Medical Association in its program for the advancement of medicine and public health education. Again this year in our Auxiliary program, emphasis will be placed on Community Service, Paramedical Careers Recruitment, American Medical Education Foundation and Health care of the aged. Of course our program can all be interpreted as service to the community as we strive to better the health of all. Mrs. Frank Gastineau, President, Woman's Auxiliary to the American Medical Association, says "Our goals can be reached if we are willing to accept Individual Responsibility for Better Community Health."

## New Officers

The new state officers of the Woman's Auxiliary are: President, Mrs. Clifford M. Bassett, Cushing; President-Elect, Mrs. Virgil Ray Forester, Oklahoma City; First Vice-President, Mrs. T. A. Ragan, Norman; Second Vice-President, Mrs. Milton L. Berg, Tulsa; Secretary, Mrs. Charles W. Freeman, Oklahoma City; Treasurer, Mrs. John W. Records, Oklahoma City; Corresponding Secretary, Mrs. Louis S. Frank, Oklahoma

City; Parliamentarian, Mrs. Iron Hawthorne Nelson, Tulsa; Historian, Mrs. George H. Garrison, Oklahoma City; and Editor of *The Sooner Physician's Wife*, Mrs. Samuel T. Moore, Oklahoma City. Our new Medical Advisory Council: E. C. Mohler, M.D., Ponca City; R. Q. Goodwin, M.D., Oklahoma City and Iron Hawthorne Nelson, M.D., Tulsa.

## Auxiliary Skit Shared

We were pleased to share our Oklahoma skit, "SHAPE, LOOK AND LINE," written for our 1959 School of Instruction with the Woman's Auxiliary to the Ohio State Medical Association. Our skit was presented this year at their Annual Meeting on Wednesday, April 22nd. Oklahoma was given full credit both in the *Ohio Medical Auxiliary News* and on their Convention Program.

## 1959 National Convention

The thirty-sixth annual convention of the Woman's Auxiliary to the American Medical Association was held in Atlantic City, New Jersey June 8 to 12, 1959, with headquarters at Hotel Haddon Hall. National committee meetings were held Saturday and Sunday, June 6 and 7. The Registration started on Sunday, June 7, at twelve o'clock and continued through Thursday, June 11th. On Friday, June the 12th the members of the 1959-60 team met together to plan the new year's work. Here each president received her new Auxiliary Work Book and heard each national chairman give a brief outline of her plans and goals for the coming year. Representation by the states at the National Convention is now based on a ratio of one delegate for each 300 members or major fraction thereof, rather than the old ratio of one delegate for each hundred. Oklahoma Auxiliary has 1146 paid current national members, entitling us to four delegates and four alternates. Mrs. Clifford M. Bassett, State Auxiliary President, served as Coordinator for the National Round Table Discussion at the convention.



# Deaths

FRED A. HUDSON, M.D.  
1884-1959

Fred A. Hudson, M.D., 74-year-old Enid physician, died May 17, 1959.

A native of Lincoln, Illinois, Doctor Hudson graduated from Northwestern University Medical School in 1907, moving to Enid in 1909.

Doctor Hudson founded and built the first Enid General Hospital in 1910. He was a member of the Southern Medical Association, the Academy of International Medicine, the Southwestern Surgical Congress and Alpha Omega Alpha.

In 1956 Doctor Hudson was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with an Honorary Membership.

JOSEPH M. POSTELLE, M.D.  
1865-1959

Joseph M. Postelle, 94-year-old pioneer Oklahoma City physician, died in Houston, Texas, May 14, 1959.

Born in Indiana in 1865, Doctor Postelle graduated from University of Maryland School of Medicine in 1894. He entered practice in Oklahoma City in 1900 where he remained until his retirement in 1950.

In 1944 Doctor Postelle was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with an Honorary-Life Membership. A Fifty-Year Pin, representing his fifty years of practice in Oklahoma, was presented to Doctor Postelle in 1948 by the state association.

RALPH HUBBARD, M.D.  
1908-1959

Ralph Hubbard, M.D., 51-year-old Oklahoma City physician, died on May 19, 1959. Born in St. Joseph, Missouri in 1908, Doctor Hubbard graduated from the University of Oklahoma School of Medicine in 1932.

Doctor Hubbard had been associated with his father, the late John C. Hubbard, M.D., and his two brothers, John R. Hubbard, M.D., and William E. Hubbard, M.D., in the operation of the Hubbard Hospital except for the time which he served in the army during World War II when he was captured on Bataan and was held a prisoner of war for 32 months. He was later awarded the Distinguished Service Cross.

Doctor Hubbard was a member of the Oklahoma State Medical Association and the American Medical Association.

GEORGE ADRIAN WILEY, M.D.  
1904-1959

George Adrian Wiley, M.D., Norman physician, died April 27, 1959.

Born in Granite in 1904, Doctor Wiley later graduated from Northwestern University Medical School in 1933. After practicing for a while in Oklahoma City, he moved to Norman, taking over the practice of his father, the late G. W. Wiley, M.D.

In addition to being Associate Professor of Ophthalmology at the University of Oklahoma School of Medicine, Doctor Wiley was a member of the American Academy of Ophthalmology and Otolaryngology, the Pan-American Association of Ophthalmology and the Association of American Medical Colleges.

JOSEPH DUNN MCGOVERN, M.D.  
1886-1959

Joseph Dunn McGovern, M.D., Wewoka physician, died May 19, 1959.

Born in Ackerman, Mississippi, May 16, 1886, Doctor McGovern graduated from Tennessee University Medical School in 1910.

Entering practice in Farrell, Mississippi, he came to Wewoka in 1927. For 50 years Doctor McGovern served the medical profession.

He was a former member of the Oklahoma State Medical Association and the American Medical Association.



# PHYSICIAN PLACEMENT

## General Practice

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

Louis E. Harrington, M.D., Danbury, Iowa, age 37, married, graduated from Wayne University College of Medicine, Detroit, Michigan, 1949, veteran, will be available September, 1959.

John Leland Hudson, M.D., 9 Anna Sue Road, Van Buren, Arkansas, married, graduated from the University of Arkansas, 1955, veteran, available since April 7, 1959.

John W. Kennard, M.D., 20 Olson Lane, Fort Rucker, Alabama, age 26, married, graduated from Bowman Gray School of Medicine, 1956, presently in military service, will be available September, 1959.

James Edward Lynsky, M.D., 2054 11th Street, Cuyahoga Falls, Ohio, age 33, married, graduated from Ohio State School of Medicine, 1957, veteran, will be available July 1, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

Thomas S. Whitecloud, M.D., 358 Market Street, Pascagoula, Mississippi, age 45, married, graduated from Tulane, 1943, veteran, has an interest in teaching and wishes to get into small hospital work, availability date depends upon situation.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

## Internal Medicine

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

Doss O. Lynn, M.D., 6101 16th Street, N.W., Washington 11, D.C., age 47, married, graduated from University of Oklahoma, 1937, board certified in internal medicine and cardiology, will have completed 21 years active service September 1, 1959, prefers institutional or industrial practice, will be available after September 1, 1959.

Vanis Pennington, M.D., 1440 W. Bethune, Apt. 402, Detroit, Michigan, age 30, married, graduated from University of Tennessee, 1953, veteran, will be available December, 1959.

John H. Prodell, Jr., M.D., 115 South Mall, Willow Lawn, Richmond 30, Virginia, age 38, married, graduate of Harvard, 1947, veteran, will be available July 1, 1959.

## Locum Tenens

James D. Green, M.D., internal medicine resident, is seeking two weeks locum tenens in general practice during the months of May or June. Doctor Green can be contacted at St. John's Hospital in Tulsa.

B. Anthony Linn, M.D., Veterans Administration Hospital, 4500 S. Lancaster Road, Dallas 16, Texas, will finish residency in Ophthalmology in July, graduate of the University of Oklahoma, 1956, licensed to practice in Oklahoma, would like to have a locum tenens for two weeks during the summer of 1959.

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

## Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

## Obstetrics and Gynecology

Robert Lee Crews, M.D., 5040th USAF Hospital, Anchorage, Alaska, age 31, married, graduate of Vanderbilt, 1954, board eligible, will be available July, 1960, upon completion of military service.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, graduated from University of Texas, 1953, board qualified, veteran, will be available in July of 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### Otolaryngology

Joseph E. Walthall, M.D., 1673 West Broadway, Anaheim, California, age 37, married, graduated from Duke University, 1946, board certified in Otolaryngology, veteran, will be available in approximately three months.

### Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

### Radiology

Thomas A. Lynch, M.D., 7009 N. 17th Street, Tacoma, Washington, age 39, married, graduated from University of Washington, 1950, board certified, veteran, availability date depends on circumstances of new position.

### Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

### General Surgery

Frank L. Lanuti, M.D., 215 S. Randall Avenue, Madison 5, Wisconsin, age 38, married, graduated from University of Illinois, 1953, board eligible in general surgery, veteran, will be available July 1, 1959.

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

### Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.

### Urology

Wilbern W. Wersich, M.D., 1008 McIndoe, Wausau, Wisconsin, age 38, married, graduated from Northwestern University, 1951, board eligible, veteran, will be available in the near future.

## MISCELLANEOUS ADVERTISEMENTS

**FOR SALE:** Numerous new and used items for furnishing a medical office. Includes a consultation chair, mayo, castle sterilizer, steel clothes locker, examining table, miscellaneous instruments and laboratory glassware, X-ray apron and gloves and an oxygen regulator. Excess to my needs—in good condition. W. A. Waters, M.D., 4926 E. 21st, Tulsa.

**FOR SALE:** Two story frame physician's office building, and equipment Britton. Centrally air-conditioned, living quarters above and two rental apartments in rear, plus two adjacent lots. Contact Key D, The Journal, Oklahoma State Medical Association, P. O. Box 9696, Oklahoma City, Oklahoma.

**TO SUB-LET:** Six months beginning August, 1959, lease then available for five years. Suite 860 square feet. Frew Building, 528 N.W. 12th, William Best Thompson, M.D.

**FOR SALE:** Hamilton Pediatric table #9888, tan finish, grey upholstery, new condition. Worden walnut consultation room furniture, new condition. Also used equipment sufficient to equip small office. Contact W. P. Jeter, M.D., 912 S.W. 50, ME 2-1556, Oklahoma City.

**WANTED:** Late model Electrocardiograph. Write Key B, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

**WANTED:** Civilian physician to serve at Air Force Hospital, Clinton-Sherman Air Force Base, Clinton, Oklahoma. Work to be essentially with outpatients. Starting salary of General Practitioner \$7,030.00. Starting salary of Specialist \$9,890.00 per year. Write to Capt. Frank H. Dailey, USAF (MC), 857th Medical Group, Clinton-Sherman Air Force Base, Clinton, Oklahoma.

**1600 SQUARE FOOT** physician's office and home for sale, located in Oklahoma community of 10,000. Office may be purchased separately, or both may be bought for about one year's gross income. Excellent practice opportunity at moderate cost. Write Key A, The Journal, Oklahoma State Medical Association, P. O. Box 9696, Oklahoma City, Oklahoma.



## Proceedings . . . April 19, 1959

(Continued from Page 400)

Doctor Gallaher announced that there were certain guests whom it would be his privilege to introduce.

Mrs. Iron Hawthorne Nelson, Tulsa, President of the Woman's Auxiliary to the Oklahoma State Medical Association, was the first guest to be introduced. Mrs. Nelson reviewed the activities of the Auxiliary the past year, and expressed their desire to be of additional service to the profession. She thanked the physicians for their cooperation and support.

Next to be introduced was Mr. Bill Kirkham, Secretary-Treasurer of the Student American Medical Association, who was representing Mr. Herschel Douglas, President of the Oklahoma Chapter of the Student American Medical Association. Mr. Kirkham stated that the Oklahoma Chapter of the SAMA was proud of the relationship between their organization and the Oklahoma State Medical Association and expressed the appreciation of the Oklahoma Chapter for the many courtesies extended them.

There being no further introductions at this time, Doctor Gallaher asked the Credentials Committee if a quorum was present. Doctor C. Riley Strong, El Reno, Chairman of the Credentials Committee, announced that a quorum was present.

Doctor Gallaher made the following announcements:

All voting Delegates will be seated in the front of the room, and the non-voting Delegates will be seated in the back of the room.

Doctor Gallaher requested the Delegates to state their name as they were recognized from the floor, in order that the Recording Secretary might make proper identification.

Doctor Gallaher asked the pleasure of the House with regard to the reading of the Minutes of the last Annual Session, which were published in the *Oklahoma State Medical Association Journal*.

Doctor Hart moved that the minutes be adopted as published, and that they dispense with their reading at this session. The motion was duly seconded and upon being put to vote, the motion carried.

The Speaker announced that he might request that involved or complicated motions be submitted in writing.

Doctor Gallaher announced that the next order of business would be the nomination of officers. He advised that Councilor Districts Nos. 1, 4, 7, 10, and 13 would elect councilors and District No. 3 would elect a Councilor to fill the unexpired term of Doctor H. T. Russell of Enid, who had resigned. Doctor Gallaher read the counties included in these Districts and presented the names of the incumbents. The Speaker also announced that the Constitution and By-Laws adopted at the 1958 meeting changed the number of

consecutive terms a Councilor could serve from two (2) to three (3) consecutive terms.

Doctor Gallaher announced that the House would recess for ten minutes to allow the Councilor Districts to caucus.

Following the brief recess, the House reconvened and Doctor Gallaher asked for any additional announcements or introduction of guests.

There being no further announcements of introductions, the Speaker then declared the House of Delegates open for nomination for the office of President-Elect, who would serve for a period of one year.

Doctor Shade D. Neeley, Muskogee, nominated Clinton Gallaher, M.D., Shawnee, for the office of President-Elect.

Doctor Peter E. Russo, Oklahoma City, nominated Walter E. Brown, M.D., Tulsa, for the office of President-Elect.

Doctor Gallaher advised the House of Delegates that as Speaker of the House he had another year of his unexpired term and that he would like to withdraw his name as a candidate for President-Elect. Doctor Neely declined to withdraw his nomination.

Nominations were declared in order for the office of Vice-President:

Doctor John F. Burton, Oklahoma City, nominated Charles E. Green, M.D., Lawton.

Doctor Gallaher called for nominations for the office of Delegate to the American Medical Association (two year term of office). He read a letter from Malcom E. Phelps, M.D., El Reno (incumbent), which stated his regrets for not being able to attend the meeting. The Speaker advised the House of Delegates that the term of office for the Delegate and Alternate to be elected at this meeting would not commence until January 1, 1960, and that the present incumbents would serve until that time. The incumbents are Malcom E. Phelps, M.D., El Reno (Delegate) and R. Q. Goodwin, M.D., Oklahoma City (Alternate). Following this announcement, the Speaker called for nominations.

Doctor Francis R. First nominated Malcom E. Phelps, M.D., for the office of Delegate to the A.M.A. There were no further nominations.

The Speaker called for nominations for the office of Alternate Delegate to the A.M.A.

Doctor C. M. Bielstein, Oklahoma City, nominated R. Q. Goodwin, M.D., Oklahoma City for the office of Alternate Delegate to the A.M.A. There were no further nominations.

Next on the agenda was the nomination of Councilors for Districts Nos. 1, 3, 4, 7, 10, and 13.

DISTRICT No. 1—Doctor F. C. Wallingford, Bart-



new... highly effective tranquilize

Comparison of TENTONE usefulness



...for extended office practice use

Tentone

Methoxypromazine Maleate

LEDERLE

NEW PHENOTHIAZINE COMPOUND FOR THE LOWER AND MIDDLE RANGE OF DISORDERS

◆ Positive, rapid calming effect in mild and moderate cases.  
◆ Striking freedom from organic toxicity, intolerance, or sensitivity reaction—particularly at low dosage. ◆ Greater freedom from induced depression or drug habituation. ◆ May be useful, as with other tranquilizers, to potentiate action of analgesics, sedatives, narcotics. ◆ Facilitates management of surgical, obstetric, and other hospitalized patients. ◆ Indicated when more than a mild sedative effect is desired...and less than psychosis is involved. ◆ Dosage range: *In mild to moderate cases:* from 30 to 100 mg. daily. *In moderate to severe cases:* from 75 to 500 mg. daily.

**LEDERLE LABORATORIES**, a Division of **AMERICAN CYANAMID COMPANY**, Pearl River, New York



Supplied



10 mg. tablets



25 mg. tablets



50 mg. tablets

lesville, nominated J. E. Highland, M.D., Miami and L. B. Word, M.D., Bartlesville, as Councilors.

DISTRICT No. 3—Doctor C. M. Hodgson, Kingfisher, nominated George T. Ross, M.D., Enid, as Councilor. (To fill the unexpired term of H. T. Russell, M.D. of Enid.)

DISTRICT No. 4—Doctor R. G. Obermiller, M.D., Woodward, nominated Joe L. Duer, M.D., Woodward and Walter H. Dersch, Jr., Shattuck, as Councilors.

(NOTE: See change in nominees in closing session.)

DISTRICT No. 7—Doctor Frances P. Newlin, Shawnee, nominated C. C. Young, M.D., Shawnee, and E. K. Norfleet, M.D., Bristow, as Councilors.

DISTRICT No. 10—Thurman Shuller, M.D., McAlester, nominated Paul Kernek, M.D., Holdenville, and C. E. Lively, McAlester, as Councilors.

DISTRICT No. 13—Doctor S. D. Revere, Chickasha, nominated John B. Miles, M.D., Anadarko, and Charles E. Green, M.D., Lawton, as Councilors.

(NOTE: See change in nominees in closing session.)

After the nominations were made, Doctor Paul Kernek questioned whether or not he would be able to succeed himself. He was advised that in view of the change in the Constitution and By-Laws, as adopted at the 1958 meeting, a Councilor could serve three consecutive terms rather than two.

Doctor Hoover brought up the question as to whether or not District No. 4 should nominate another candidate for Councilor, since Joe L. Duer, M.D., Woodward, already held an office as Alternate Delegate to the A.M.A.

The Chair advised the House of Delegates that Doctor Joe L. Duer could not hold two offices, and therefore, District No. 4 should caucus to make an additional nomination. Doctor Gallaher also announced that should Doctor Charles Green be elected to the office of Vice-President, it would be necessary for District No. 13 to submit the name of a physician from the district as a substitute nominee.

As the next order of business, Doctor Gallaher asked for a report from Wilkie D. Hoover, M.D., Delegate to the American Medical Association.

Doctor Hoover reported that he had attended the A.M.A. House of Delegates meeting held in December, 1958 at Minneapolis, Minnesota. Doctor Hoover stated that one of the issues which occupied most of the time at the meeting was the question of the "Care of the Aging." He read a report of the recommendation of the A.M.A. House of Delegates on the subject, which was adopted almost unanimously by the A.M.A. House of Delegates. The second major item on which Doctor Hoover reported was the Commission of Medical Care Plans; however, action on this issue was postponed until the meeting to be held in Atlantic City in June of 1959.

The speaker next called on Doctor R. Q. Goodwin, Oklahoma City, Alternate Delegate to the A.M.A. to report. Doctor Goodwin reported briefly on the work of the Delegates and Alternates, how they went to various Reference Committees, etc. He stated that he was assigned to the Legislation and Public Relations Committee, where one of the major points of concern was the contamination aspect of the Korean children who were brought into the United States each year. He reported a survey revealed that 60% of the Korean children under the age of three have tuberculosis. This committee recommended that this immigration be curtailed until further analysis of the contamination could be made.

In conjunction with the Commission on Medical Care Plan, Doctor Goodwin asked that the members read the report in the April issue of the *OSMA Journal* and that they then offer their suggestions to the Delegates and Alternates.

At this point, Doctor Gunnar Gundersen, President of the American Medical Association, arrived at the meeting. Doctor E. C. Mohler, President of the Oklahoma State Medical Association, gave a brief resume of his background and asked that Doctor John E. McDonald, Tulsa, who was his sponsor, introduce him.

Doctor McDonald's remarks were brief, and then he presented Doctor Gundersen to the House of Delegates.

Doctor Gundersen greeted the House of Delegates, paid tribute to some of the pioneer physicians; and cited numerous incidents in which the A.M.A. has taken a positive approach to problems, such as the A.M.A.'s Public Education Campaign; the Hill-Burton Hospital Construction Program; the far-sighted workable program to provide Health Care for the Aging, etc. Doctor Gundersen stated that there were two outstanding reasons for the medical profession to be concerned for providing health care for the aging: (1) Medicine is responsible for lengthening man's life span, and (2) We must act positively to set our program into motion before the federal government steps in.

Doctor Gundersen reported that the A.M.A. Delegates adopted last December at the Minneapolis Meeting, a proposal which applies specifically to the population over 65, with modest resources. Physicians are urged to accept a level of compensation that will permit the development of insurance or pre-payment plans at a reduced rate for medical services rendered to this particular group. He reported that the A.M.A.'s Committee on Aging has called on industry and labor leaders to re-evaluate compulsory retirement.

Also, at the A.M.A.'s suggestion, the Health Insurance Association of America has asked its member companies to provide health and accident policies renewable for life, covering those over 65 and after retirement.

The Health Insurance Institute of America estimates that 60% of our senior citizens will have pro-



tection by the end of next year; that figure will rise to 75% by 1965, and is estimated to rise to 90% by 1970. Doctor Gundersen reported that the immediate need is to mobilize the entire medical profession to develop wide-spread, low-cost health insurance coverage for the senior citizens. The success of our program hangs on the cooperation of every American physician.

Doctor Gundersen spoke briefly of the need for the continuation of the payment of A.M.A. dues. In conclusion, Doctor Gundersen praised the Oklahoma State Medical Association, and hoped that they would continue to enjoy the same degree of confidence and respect of the people to whom their lives were dedicated.

Doctor John E. McDonald next introduced Doctor Edward L. Moore, Tulsa, General Chairman of the Convention. Doctor Moore, on behalf of the Oklahoma State Medical Association, presented a remembrance gift to Doctor Gundersen.

As the next order of business, the Speaker introduced L. J. Starry, M.D., Oklahoma City, who is Chairman of the Medical Advisory Committee to the American Medical Assistants' Association. Doctor Starry had asked to appear on the program, but had been delayed.

Doctor Starry explained who comprised the Medical Assistants Group and what they were attempting to accomplish. He asked for the support of the physicians.

The Speaker asked for a continuation of the Report of the Officers.

Doctor Joe L. Duer, Woodward, Alternate Delegate to the A.M.A. discussed the A.M.A. meeting, held in Minneapolis, elaborating on the Osteopathic Resolution which failed in the A.M.A. House of Delegates.

Doctor Gallaher called for any reports from the Councilors. There being no reports, he asked for any announcements, or additional introduction of guests.

As the next order of business, Doctor Gallaher announced that the COUNCIL REPORT would be presented by Doctor E. C. Mohler, President of the Oklahoma State Medical Association.

Doctor Mohler presented the following report:

### **Council Report**

It seems rather ironical that each Council Report of the Oklahoma State Medical Association finds the profession still seeking to assist in solving problems, not only in the scientific field of medicine, but the problems also of the body of politics and those of economics.

This report (as those in the past), cannot possibly deal with all of these problems or recite the profession's accomplishments in the past year or years, or contemplated in the future.

To make these contemplations would be almost foolhardy; but also, it would be inaccurate not to admit that problems in these fields still exist and must be given the greatest consideration and study by the profession in the best interest of the health of the people, not only of Oklahoma, the United States, but as they might affect the world at large.

These remarks of the Council are made only to draw to the attention of the House of Delegates that each delegate should weigh carefully his deliberations of the reports and recommendations that will be made by the several committees of the Association.

### **Membership**

Due to the fact that the Annual Meeting is being held approximately three weeks earlier than the usual meeting which is held during the first week of May, an accurate comparison cannot be made of the membership of the Association.

However, from the number of paid membership already received, it can be anticipated that the total membership will continue to increase by a small number.

As of April 15, 1959, the paid membership of the Association was 1,504. In addition, there are 135 Life and Honorary members, thus making a total Association membership of 1,639.

### **Finance and Budget**

The Council once again reiterates that the estimating, in 1959, of the Income and Expenditures of the Association for the year 1960 is virtually impossible.

However, with the ownership of property, there has also come responsibility and new problems for the Council and the Executive Office.

The Association, on December 31, 1958, had on hand in the Liberty National Bank \$20,923.45, which sum does not include any 1959 dues. In addition, the Association had on deposit in the Ponca City Savings and Loan Company, the Home Savings and Loan Company, Lawton, and the Home Savings and Loan Association, Bartlesville, the sum of \$22,354.65 which is earning 3½% interest.

For the upkeep of the Association Building, and held in a separate account, the Building Fund of the Association is now in the amount of \$2,155.42, which represents the total accumulation of building fund fees in the amount of \$35.00 for each new member.

Although the Council cannot anticipate any unusual expenditures for the coming year, or years, your Council does feel that above all else, the Association should keep in mind that a time may come when the finances of the Association may not be in as an advantageous condition as at present; and therefore, recommends that the reserve funds of the Association be increased as rapidly as possible until

such time as they reach the total sum of one year's operating expenses, which at this time are approximately \$100,000.00.

Considering these financing factors and the present operating costs of the Association, and any capital investments that might have to be made, your Council recommends that the dues of the Association remain at \$42.00 for the year 1960.

## BUDGET

### Income

DUES .....	\$ 68,000.00
ANNUAL MEETING .....	8,000.00
JOURNAL .....	45,000.00
MISCELLANEOUS (Including Interest) .....	2,000.00
	<hr/>
TOTAL INCOME .....	\$123,000.00

### Expenditures

OFFICE EXPENSE .....	\$ 55,000.00
ANNUAL MEETING .....	13,000.00
LEGAL COUNSEL .....	1,200.00
JOURNAL .....	43,000.00
TRAVEL (In and Out of State) .....	6,000.00
COMMITTEES .....	3,500.00
	<hr/>
TOTAL EXPENDITURES .....	\$121,700.00
INCOME OVER EXPENDITURES .....	\$ 1,300.00

## Executive Office

As indicated in the Budget, the account of the Building Fund now stands at the amount of \$2,155.42, which is sufficient to take care of any known contingencies that might develop in regard to the Association's property.

It might be of interest to the House of Delegates to know that the property now owned by the Association is 2.26 acres on U. S. 66, with a frontage of 256 feet, which was purchased three years ago for \$6,200.00.

It might be of further interest to the House of Delegates to know that recently 100 front feet to the west of the Association property was sold for \$15,000.00.

## Journal

The House of Delegates' attention is called to the greatly expanded *Journal*.

In the last four years, the total number of pages of copy has increased from 421 to 744, and the number of pages of advertising from 494 to 923.

The Council commends the Editorial Board and its Editor, Doctor Ben H. Nicholson, for the outstanding work they have done.

## Annual Meeting

Due to convention schedules in Oklahoma City and Tulsa, which have been growing larger each year, the Council recommends that the meeting place be scheduled three years in advance.

Your Council therefore recommends that the 1960 meeting be held in Oklahoma City; the 1961 meeting in Tulsa; and the 1962 meeting in Oklahoma City.

The Council commends Doctor Edward L. Moore, General Chairman, and Doctor Byron W. Steele, Program Chairman, and their committees for the splendid work done in making arrangements for this Annual Meeting.

## Committees

During the past year, it has become increasingly evident to the Council that with the multiplicity of problems being considered by the Association, there should be a re-evaluation of its committee structure.

This problem was placed first before the Executive Committee of the Council where it was approved and subsequently before the Council where it was again approved and now is submitted to the House of Delegates.

Under the Constitution and By-Laws, there are only five (5) standing committees—all other committees are special committees and serve at the pleasure of the President. Although this transition could be accomplished without action of the House of Delegates, nevertheless, your Council felt that this change should have the consideration and sanction of this body. Therefore, your Council recommends that the following changes be made, on a trial basis for one year, and if successful in operation, proper amendments be made to the Constitution and By-Laws.

1. That instead of Committees, the Association create the following Councils:

- A. Council on Public Health
- B. Council on Public Policy
- C. Council on Socio-Economic Activities
- D. Council on Insurance
- E. Council on Professional Education

2. That under these Councils, there be created:

- A. Sub-Committees germane to the nomenclature of these Councils.

The Council is of the opinion that this will streamline the working structure of the Association and better dovetail some overlapping committees and problems.



If this procedure is followed, all committees of the Council's recommendations will be channeled through five (5) Councils which, in turn, can more easily coordinate their functions.

Your Council is further of the opinion that in order for the majority members of the profession to better recognize the interim governing body of the Association, that the name "Council" be changed to "Board of Trustees" and that proper amendments to the Constitution and By-Laws be prepared and be acted upon at the 1960 meeting.

### **Honorary-Life Membership**

The Council has had the following applications for Honorary Life Memberships submitted to it and recommends their election:

O. C. Armstrong, M.D., 2055 East 13th St., Tulsa  
John F. Capps, M.D., 406 Atkinson Drive, Midwest City  
H. W. Ford, M.D., 915 South Cincinnati, Tulsa  
Orion Russell Gregg, M.D., 400 West Johnson St., Norman  
Luvern Hays, M.D., 2447 East 27th Place, Tulsa  
Clyde F. Loy, M.D., 6109 Smith Blvd., Oklahoma City  
Hiram D. Moor, M.D., 4004 N.W. 13th St., Oklahoma City  
Edward Franklin Stephens, M.D., 621 Tulsa St., Norman  
R. Z. Taylor, M.D., Blair

### **Legislation**

While this general subject will be presented to the House of Delegates by the Public Policy Committee, the Council, nevertheless, feels that this subject cannot be over-stressed with particular emphasis on the Forand Bill (H.R. 4700) now before the National Congress.

Unless each member of the medical profession pulls his share of the load, final enactment may be inevitable.

### **Free Choice of Physician—Closed Panel System**

The American Medical Association, at its December, 1958 meeting in Minneapolis, requested all State Medical Associations to report to the A.M.A. by March 3, 1959, their opinions on two questions: One, being the Free Choice of Physicians, and the other the Closed Panel System.

Each County Medical Society was asked to consider these two questions and make its recommendations to the Executive Office. The replies received from the County Societies were 100% in favor of free choice of physicians and opposed to the closed panel system.

From the results of this survey, your Council rec-

ommends that the House of Delegates formally endorse the results of the survey and so recommends.

### **White House Conference**

In 1960 in Washington, D.C., there will be held two White House Conferences, one on youth and the other on aged.

Oklahoma Committees for these conferences are being formulated through the Extension Division of the University of Oklahoma to which Division of the University, the project has been assigned by Governor Edmondson.

Medicine's part in these two conferences will be of great importance.

It is contemplated that in some instances surveys will be taken at the county level and all County Medical Societies should be on the alert and ready to extend any and every cooperation to studies that might be developed in the health field.

During the past year, several matters of importance have come about.

Medical Care for Public Welfare Recipients had been in effect for a sufficient length of time to develop problems and their answers in part. This subject will be more widely dealt with in the Public Welfare Committee Report. Medicare came to an end in Oklahoma as far as official endorsement by the Association. Incidents of malpractice suits leveled off and the Association's professional liability program is in much more favorable position than this time last year.

Care of the Aging, as will be reported by the Committee on Aging, seems at the moment to be one of the biggest goals to try and solve in the years to come.

Your Council appreciates the support given it by the membership and hopes it will continue to merit the profession's confidence.

### **Amalgamation of County Societies**

The Council has had submitted to it a request from the physicians of Sequoyah County to withdraw from the East Central Medical Society and to combine their membership with the Cherokee-Adair District Society and to incorporate the new name of Cookson Hills Medical Society. The East Central District Society entertains no objection to this re-alignment.

Your Council therefore recommends that this re-alignment be authorized by the House of Delegates.

Doctor Shade D. Neely, Muskogee, moved that the Council Report be adopted as a whole. This was duly seconded and the Speaker called for discussion. In response to a question from Charles Wilbanks, M.D., Tulsa, Doctor Mohler explained the need for the revamping of the Committees. There being no



further questions, a vote was taken and the motion carried.

Doctor Gallaher advised that the next order of business would be the REPORTS FROM THE ASSOCIATION'S COMMITTEES:

### Insurance Committee

During 1958, the Committee had two objectives, one to institute a new health and accident program for members and the other to work closely with the St. Paul Mercury, the carrier of the Association's professional liability insurance, and the County Societies in reducing the number of malpractice claims.

The Committee's first activity was with regard to a health and accident program. After much discussion, investigation and consideration of the plans of several insurance companies, the committee adopted the plan of North American Accident Insurance Company. This was done primarily because it offered a little more for the money and even more important, would permit every active member of the Association under the age of seventy (70) to have at least a minimum amount of insurance without proof of insurability, because the required number of policy holders was already in effect. A copy of the Master Contract is attached to this report and may be perused if anyone desires.

We are happy to report that it has been very favorably accepted and the representatives report that as of April 15, there are 1,002 policies in effect, as compared with an original number of 760. This is an increase of 242 over the 760 in effect under the former program. The North American has been very cooperative in extending coverage equal to the old policy to all, even though they may have become impaired risks since they took the original policy.

There is a part of the contract which states that anyone who is a practicing member of the Association, under seventy (70) years of age, may apply—although he will have to offer proof of insurability after the original enrollment period.

The Oklahoma State Medical Association's Insurance Trust, which holds a master contract with the Massachusetts Mutual Insurance Company, seems to be in a favorable financial situation, but they will make their own report.

In the field of professional liability, the St. Paul Mercury has given the following report. In 1959, there were 72 claims reported for investigation although all of these will not result in final suits. This is a slight decrease over 1958. Since 1958, two additional counties have been added to the list in which suits have been filed, these are Adair and Texas.

Concerning rates and losses, the following information from the St. Paul Mercury is of interest:

"In November of 1958, we indicated to you that

as soon as the 1958 figures were available, we would be in further contact.

The statewide experience under the program for the year of 1958 represented \$262,455 in written premiums against which we had incurred losses of \$120,580, or a .469 loss ratio. We have indicated to you previously that our permissible, or break-even loss ratio on this class of business is considered to be 51%. On the other hand, the Bureau companies consider this ratio to be 44%. You can, therefore, see that the year of 1958 did produce satisfactory results. We have indicated to you previously that the total annual premiums and losses on the inception of the program up to and including 1957 represented \$819,155 against incurred losses of \$427,102, or a loss ratio of .521. Adding the 1958 results to the above represents a picture of \$1,081,610 in premiums against incurred losses of \$547,682, or a .506 loss ratio.

You can, therefore, see that the overall program has again reverted to a profitable picture but only to the point of about ½ of 1%. This, of course, is encouraging and is apparent that continued vigilance on the part of all the various committees, etc., has shown its effect. On the discouraging side, however, we note that there has been an increase in the total outstandings in 1958 as compared to the beginning of 1958. For example, the total outstandings at the end of 1958 represented \$116,200 whereas the total outstandings at the beginning of the year was \$95,900, or a net increase of \$20,300.

In conclusion, while there are encouraging aspects to the experience picture, it appears that we still have some progress to make.

(Signed) D. L. CLIFFORD, Underwriter  
General Liability Department."

Gentlemen, it has been a pleasure to serve as Chairman of the Insurance Committee, and the committee is indeed gratified with the improvement in the loss ratio in the public liability program. We would like to compliment the County Medical Societies who have worked to do all they could to reduce losses and we appreciate the cooperation of the doctors of this state in the three programs.

Respectfully submitted,

R. A. SMITH, Chairman.

Insurance Committee Members are:

Ralph A. Smith, M.D., Oklahoma City, Chairman  
E. C. Yeary, M.D., Ponca City  
C. E. Woodard, M.D., Drumright  
Port Johnson, M.D., Muskogee  
Willard D. Holt, M.D., Altus  
Curtis Berry, M.D., Norman  
Ralph A. McGill, M.D., Tulsa  
Archie F. Dougan, M.D., Enid

The Speaker advised that this was an informative report, requiring no action by the House of Delegates.

### Public Policy Committee

The Public Policy Committee, has by the general definition of Public Policy, a wide latitude of scope. The committee realizes that it cannot study and report on all governmental programs that do not directly come within the realm of medicine as a profession. As citizens we should take much more interest in non-medical legislation and join hands with other free enterprise interests. This report will deal only with Federal and State Legislation as related to medical problems.

### Federal Legislation

Before reviewing federal legislation, the Committee would like to remark that the Oklahoma State Medical Association should be proud of the fact that on the Legislative Committee of the A.M.A. it has a member, Doctor John E. McDonald of Tulsa. Our congratulations and support should go to Doctor McDonald for the time and effort he has given to this assignment.

Time will not permit a review of all legislation now before Congress. However, each physician is reminded that the A.M.A. news now goes to each physician in addition to the *Journal* of the A.M.A. and the *Journal* of the O.S.M.A. In each publication there is carried a review of all pertinent and current National Legislation so that no physician need feel that he is not well advised on this subject, if he will take time to read these publications.

Currently on the National level there are two bills of importance to the profession. One is the Forand Bill (H.R. 4700) and the other the Keogh-Simpson Bill (H.R. 10).

Your committee does not feel that it is necessary to dwell at length on these two bills other than to make a few general remarks.

#### Forand Bill (H.R. 4700)

This measure would bring approximately 14 million persons now on Social Security into a category whereby the Federal Government would pay for hospital, nursing home care and surgical, medical and dental care for this group of people. This problem will be more fully presented by the Association Study Committee on Health Insurance for Senior Citizens.

The Keogh-Simpson bill (H.R. 10) is a measure which would allow the self-employed person to deduct from his reportable gross income each year \$2,500.00 or 10% whichever is the lesser for the purpose of establishing his own retirement. There is a life time aggregate of \$50,000.00. This bill has passed the House of Representatives and is now in the Senate Finance Committee of which Senator Robert S.

Kerr is Vice-Chairman. There is every reason to believe that within the next 30 days there may be public hearing on this proposal. It is the recommendation of the Committee that every physician in Oklahoma should write to Senators Kerr and Monroney and the members of the Senate Finance Committee urging them to do what they can to see that this bill is reported out of committee and brought to a vote of the Senate.

Due to the urgency of these two Federal Legislative proposals the Public Policy Committee and Doctor John E. McDonald of the A.M.A. legislative committee have revitalized the O.S.M.A.'s activities in this field by appointing a physician from each Oklahoma Congressional District to build national legislative teams in their respective districts. This Committee of physicians is as follows:

Dist. I—Worth M. Gross, M.D., Tulsa

Dist. II—Tom S. Gafford, Jr., M.D., Muskogee

Dist. III—J. Hoyle Carlock, M.D., Ardmore

Dist. IV—Clinton Gallaher, M.D., Shawnee

Dist. V—William N. Harsha, M.D., Oklahoma City

Dist. VI—Paul B. Lingenfelter, M.D., Clinton

This Committee will meet with Doctor Gundersen, President of the A.M.A. on Monday, April 20th, to prepare its campaign for the coming months. Your Committee urges that the delegates inform their county societies of this impending program and to be prepared to give every cooperation. Emphasis should frequently be made in County Medical meetings regarding the study of legislative problems.

### State Legislation

As each delegate knows, the Public Policy Committee is now publishing and sending to all members of the Association "OSMA-SCOPE," to keep the membership informed of legislative proposals, both state and national, that are currently of importance. At the present time, this publication has dealt mainly with state legislation.

The Committee has under study twenty-seven bills which in some way affect the health of the public or the medical profession. Of these bills, five are of major importance at this time. These are as follows and their present position in the legislature:

**SENATE BILL 20:** This measure is one of Governor Edmondson's major financing bills, and places the Crippled Children's Commission in the Public Welfare Department. The bill has passed both Houses of the legislature but did not receive sufficient vote to attach the emergency clause which is necessary if the law is to become effective with the signature of the Governor. The bill is now in a Conference Committee of the House and Senate with Senator Ritzhaupt as Chairman. A history of the Association's



activities on this measure has already been reported in OSMA-SCOPE. The Governor and our Legislature are still open to suggestions from the medical profession regarding this very significant bill.

**H.B. 735:** Introduced by Representative Forsythe of Tulsa County, this bill would create a Medical Examiner System in Oklahoma. It was referred to the House Committee on Government Regulations and the Appropriations Committee. It has been favorably voted upon by the first committee and is now before the Appropriations Committee for action. Watch your OSMA-SCOPE for timing to contact members of the Appropriations Committee.

**H.B. 820:** Introduced by Representative Bradley of Addington, the bill would permit advertising for the sale of eye glasses. The bill was only introduced last Wednesday and its committee assignment is not yet known.

**H.B. 658:** Introduced by Representative Bullard of Duncan, this bill would place a one-cent tax on soft drinks with the revenue to go to the University of Oklahoma Medical Center. It is now before the House Committee on Revenue and Taxation where public hearings are being held.

**H.J.R. 518:** This resolution by Representative Forsythe of Tulsa County would place on a ballot for a vote of the people, an amendment to the Constitution of Oklahoma to allow Counties to vote up to 2.5 mills for County Departments of Health. The Resolution is on 3rd Reading in the House of Representatives.

In conclusion, your Committee knows of no legislation now before the Legislature that would, if enacted, be to the detriment of public health.

Your Committee again urges each member of the Association to keep constantly informed on local and national problems, medical and otherwise, through the growing number of sources available. Politics is the basis of our Christian democracy and is only as "dirty" and impalpable to us as we as citizens allow it to be. We suggest that each member of the O.S.M.A. consider himself a lifetime member of the Public Policy Committee.

Respectfully submitted,

JOHN R. STACY, M.D., Chairman.

The Speaker advised that this also was an informative report, requiring no action by the House of Delegates.

### Medical School Liaison Committee

In the absence of the Chairman, Doctor W. T. McCollum, Oklahoma City, R. R. Hannas, M.D., Sentinel gave the following report of the activities of the Medical School Liaison Committee:

Since this is a newly established Committee, its functions have been limited. The purpose of the Com-

mittee is, of course, to attempt to bring a better understanding between the profession and the Medical School, as to their mutual problems.

The first meeting of the Committee was held on January 11, 1959, in conjunction with a like committee from the Oklahoma Academy of General Practice and a second meeting was held on January 25, 1959.

The first meeting was for the purpose of outlining some of the problems that seemed to be developing concerning medical education, and these problems were in the following major fields:

1. The reasons why medical students were not entering the field of General Practice.
2. Smaller communities and in some cases metropolitan centers not being able to secure physicians.
3. That even trained specialists were leaving Oklahoma because of the limited areas in which they could practice.
4. A discussion of the manner of teaching students and a faculty understanding of the needs of the state.

Following these discussions, the Committees agreed to seek consultation with Doctor Everett, Dean of the Medical School, for a discussion of these problems.

Subsequently, at the January 25 meeting, the Committees met with Doctor Everett and other representatives of the faculty, and a general discussion was had on the problems developed at the first meeting.

Representatives of the Medical School indicated a desire to cooperate in trying to solve these problems and welcomed criticism and suggestions.

While no definite action was taken, the initial work of the Committee seemed worthwhile, and it is hoped that further meetings of the Committee with the representatives of the Medical School can be profitable.

It is the further recommendation of your Committee that continued liaison be maintained between this committee of the O.S.M.A. and the University of Oklahoma Medical Center.

It is thought that sound, specific topics for further exploration are:

1. Establishment of a circuit course type of lecture-ship by the Faculty at the Medical School for the benefit of the physicians of the State, similar to the plan in operation for some years in Kansas.
2. Encouraging the entire State Medical Association to support the Medical School more actively, particularly in obtaining appropriations from the Legislature.
3. Encouraging outlying physicians to participate actively in the teaching clinics at the Medical School.



It was moved and duly seconded and carried that this report be accepted with the recommendation for the continuation of this committee.

At this point, Doctor Peter E. Russo, Oklahoma City, requested the names of the members of this committee. Doctor Gallaher advised Doctor Russo that the names of the committee would be secured and reported in the afternoon session.

At 1:00 p.m., the Speaker announced the meeting would be adjourned for lunch, and would reconvene in the Pompeian Room at 2:00 p.m.

The House of Delegates reconvened at 2:00 p.m. in the Pompeian Room of the Mayo Hotel, Tulsa.

Doctor Gallaher advised that the Association's Committees' Reports would be continued:

### **Blue Cross-Blue Shield Liaison Committee**

Henry T. Russell, M.D., Enid, is Chairman of this Committee; however, in his absence, Doctor Frank J. Nelson, Tulsa, gave the report of this Committee:

This committee came into existence for the first time in the history of the State Medical Association on July 23, 1958, by appointment of Doctor Mohler, through previous authorization of the Council. The committee was instructed that they were not in any way an executive committee, but were simply to attempt to present various problems of the members of the State Medical Association to Blue Shield-Blue Cross and to present problems of Blue Shield-Blue Cross to the governing bodies of the State Medical Association. In their brief existence, the committee has endeavored to do this.

The first problem presented to the Committee concerned an attempt in Custer County to set up an outpatient diagnostic service on a trial basis. This service had been requested by the member council group of the county and had been endorsed by the County Medical Society. The various problems inherent in setting up such a program were discussed by members of Blue Shield-Blue Cross and by members of the County Society before the Blue Shield Liaison Committee. The Committee recommended that they proceed to attempt to set up such procedures and they have done so. However, because of the increase in utilization of Blue Shield-Blue Cross in this county, at the present time, the experiment has been delayed indefinitely.

At the same meeting, the Committee endorsed the activity of Blue Shield-Blue Cross in sponsoring the various member council groups throughout the state. It was thought that this was an excellent way to present the problems of medical insurance to the people and the Blue Shield-Blue Cross were encouraged to continue these member councils. In addition, it is requested of this group of delegates that you support the member council group and that doctors

try to attend the member council meetings whenever possible.

The Blue Shield adjudication committee meetings, which have been held in various cities in the state, were also endorsed by the committee as being a good method of presenting to the doctors of the state problems that confront Blue Shield in paying various claims. It was recommended that the Blue Shield continue these meetings and once again, the doctors are encouraged to attend and participate in the adjudication committee meetings, as we feel this will bring about a better relationship between Blue Shield and the members of the medical profession.

A report on the Blue Shield Service Plan that is being given an experimental trial in Garfield County was presented. At the present time, there are insufficient data to tell how well the plan is going to work, but another report will be given when more data are available. At the present time, two other counties have applied to Blue Shield-Blue Cross to have the same type of program. In these instances, the request was made by all the members of the local County Medical Society. To date, these programs have not been implemented.

One member of the State Medical Association objected to one type of article that appears in the Blue Shield-Blue Cross magazine "*Hospitality*." This member particularly objected to one certain article that was in the program relating to transplanting of corneas. His objections and reasons were presented to the executive director of the Blue Shield-Blue Cross and the committee has been assured that in the future any such articles will be presented to the Committee for screening prior to being published in the magazine "*Hospitality*." This should eliminate any objections to articles of the type referred to above.

At the last meeting of the Committee, it was recommended to the Blue Shield-Blue Cross by the committee that they begin a dignified and low pressure education program to educate their members as to the harm of over-utilization of Blue Shield-Blue Cross. This will be done through various agencies of the Blue Cross, such as their *Hospitality* Magazine and the member councils. It is felt by the Committee that one of the greatest dangers to private insurance, as opposed to socialized medicine, is the continually increasing cost of Blue Shield-Blue Cross service which might be the eventual cause of its downfall. In view of this, it is felt that the members should be aware of the dangers of over-utilization.

Lastly, your committee has been actively engaged in the evaluation of a program for the very large group of people over the age of 65. This was at the request of the House of Delegates of the A.M.A. and is being accomplished in conjunction with the Subcommittee on Insurance and Retirement, a subdivision of the Committee on Health Care of the Aged. This has been an extensive and time consuming problem and the report of the combined committees will be given in a separate report and no details need be given at this time.

It is further recommended to this House of Delegates that they communicate to their various constituent medical societies that there is a Blue Shield-Blue Cross Liaison Committee and that its purpose is to establish and maintain better relationships between the Association and the Blue Shield-Blue Cross. The members of the Association are encouraged to present any problems which might arise between the members and Blue Shield-Blue Cross, as it has been the experience of the committee so far, that these can usually be resolved to the satisfaction of both groups.

HENRY T. RUSSELL, M.D.,  
Chairman for the Committee.

April 8, 1959

Doctor Gallaher announced that this report was informative and therefore did not require action by the House of Delegates.

Doctor Gallaher then read to the Delegates the names of the members of the Medical School Liaison Committee, as had been requested in the morning session by Doctor Peter E. Russo, Oklahoma City.

The Credentials Committee announced that a quorum was present at the reconvening of the opening session.

### **Grievance Committee**

Doctor R. Q. Goodwin, Oklahoma City, member of the Grievance Committee gave the following report:

Since the last meeting of the House of Delegates, the Committee has held four meetings.

During this time, four complaints have been filed with the Committee. Two have been closed to the satisfaction of the complainant, and two are still pending.

As to cause of origin, the four cases would be divided as follows: One case involved advertising, and the other three dissatisfaction with quality of care and attention given the patient.

As the Committee has repeatedly stated, there would be little occasion for this Committee if physicians at all times would maintain a close and human physician-patient relationship.

Respectfully submitted,

JOHN E. McDONALD, M.D.,  
Chairman.

This report, being an informative one, did not require the action of the House of Delegates.

### **Report on Medical Care for Recipients of Public Welfare Assistance Committee (D.P.W.)**

Doctor Mark R. Johnson, Oklahoma City, Chairman of this Committee gave the following report:

Report Period from May 5, 1958 to April 15, 1959

### **Committee Organization**

Mark R. Johnson, M.D., Oklahoma City, Chairman

Richard H. Burgtorf, M.D., Shattuck

T. H. McCarley, M.D., McAlester

George H. Garrison, M.D., Oklahoma City

E. M. Gullatt, M.D., Ada

Thomas E. Rhea, M.D., Idabel

### **Formal Committee Meetings were held on:**

July 9, 1958	August 6, 1958	September 17, 1958
November 5, 1958	December 3, 1958	January 2, 1959
March 4, 1959		April 1, 1959

The Committee was duly constituted and a quorum was present at each meeting. The elected Chairman presided at each meeting. Copies of the approved minutes are attached.

During the report period it has been the committee's pleasure to watch the gradual development and evolution of a unique program of medical care. It is unique not only in its scope and limitation, but it is also unique in being the first governmental financed, involuntary, insurance-type medical care program in which the members of the State Medical Association have participated. In other ways, the program is not unique: It does not have and probably should never have the unqualified endorsement of every physician who has had experience with it. It is not the solution to all the problems concerning the provision of medical care for the economically handicapped, aged and infirm citizens of the state. It is not a faultless program and it has not been entirely free of misapplication. It has, at least to this point, been adequately financed and has, therefore, carried the inevitable temptations of a cornucopia.

In general terms, the program has been a popular success currently carrying the endorsement of the legislature, the hospitals, the physicians and most importantly, the people. As is the case in most successes, however, and most particularly successful governmental adventures, a considerable amount of money is involved. Specifically, the medical care program carried out from August 1958 through March 1959, has cost approximately nine million, seven hundred thousand dollars. This much money has been spent in the retirement of approximately one hundred forty thousand claims during the ten month period. Payments to physicians have averaged \$50.80 per case and payments to hospitals \$157.00 per case for an average of 9.4 days of hospitalization. Thus, physicians have received 15.5% of this total expenditure while hospitals received approximately 42% of the total. Each month, some two thousand old age assistance recipients are provided slightly more than twenty thousand hospital days of care.



Current figures would indicate that the program is growing and if it continues to expand, may soon strain its economic reins. For example, payments to physicians in March, 1959, were some 25% greater than those paid in March, 1958. The greatest relative growth in the program, however, has been scored by payments to nursing homes where recipients are in residence, the population of which has tripled since March, 1958. Also, the acceptance and payment of claims for in-home nursing care, which represents a new expense since the beginning of the fiscal period, has cost an additional one million six hundred forty-seven thousand dollars during the past ten months.

In summary, ranking the payment categories to their order of expense, we find payments to hospitals ranking first, followed by payments to nursing homes and, in turn, followed by payment of claims for in-home nursing care. Of the six claim categories, payments to physicians rank fourth, followed by payments for ambulance services and, occupying the position of least expense, payment to blood banks.

However interesting or boring these figures may be, they do reveal trends and serve as guides in the development of policy. They remind us to ask, "how should the program grow?" "How should the program be limited?" "In what ways of efficiency and supervision can the value of the medical care dollar be protected?" Such are some of the questions with which your committee has worked during the past year.

In July of last year, the chairman of the committee was named and appointed a member of the Professional Advisory Committee to the Department of Public Welfare. Serving on both committees made it possible to continue good rapport and communication between the two groups. Program policies which had been developed and approved by the Medical Association's membership were expressed and generally followed by the Professional Advisory Committee. In turn, the recommendations and actions of the Advisory Committee were discussed and evaluated by this committee. In the broad sense, things have run smoothly. There have been times when the cold war seemed to warm up but there have also been times when it has dissipated into a mere chilliness. Paradoxically perhaps, the warmth seemed to be invigorating and the chilliness is considered a healthful condition.

In July of last year, your committee recommended the appointment and activation of a special committee to study the prevailing structure and functions of the Crippled Children's Commission with a view toward possible reorganization of its program. Also in July of last year, the committee recommended 1) That payments be made to physicians only upon the submission of a codeable diagnosis in the claim, 2) That medical care payments be allowed in surgical cases when separate skills are required, 3) That allowances for diagnostic consultations and pre and post-operative care be separated from the surgical

fee and approved for payment in applicable cases, and 4) recommended the approval of medical care of fathers in the ADC category provided that "... no other resources were available for rehabilitation and if the recipients were selected and approved by the Vocational Rehabilitation Department and if after an appropriate period of convalescence from medical and/or remedial surgical procedures the recipients are removed from welfare roles."

The latter problem was the subject of further deliberation in the August meeting which was attended by Mr. Rader and Doctor Bielstein, Chairman of the Professional Advisory Committee. The objective of such a trial extension of the program, as outlined by Doctor Bielstein, was to provide a means of obtaining remedial, medical or surgical care which would ultimately make it possible for the recipients to be gainfully employed. At that time, Mr. Rader stated that if such care were offered and refused by the recipient, he could be suspended and ultimately removed from the welfare roles. Subsequently, the following motion was approved:

"This committee approve the extension of services to parents of the ADC families for the next six months in order to provide for free choice of physicians and free choice of hospitals, medical, and/or surgical correction of disease or defects subject to the following provision:

Continuation of such a program beyond six months, beginning October 1, 1958, be dependent upon the extension of approval by the physicians; individuals who undergo such rehabilitation be removed from their status as recipients of welfare funds as permitted by law; that the Association committee receive a monthly report."

Subsequent action and member notification concerning the motion was referred to the discretion of the President of the State Medical Association. To date, the Committee has received no communications from the Department of Public Welfare indicating that such program has been executed, or is ready for execution.

During its August meeting, the Committee was presented with the possibility that program costs were exceeding the available income and it was asked to formulate a recommendation for expenditure curtailment. Thus, it was recommended, that in the event of necessity, "A deficiency adjustment be approved for all categories of expenditures in the welfare program, this to include medical care." Perhaps in anticipation of events to come, the committee also recommended that the next area of development and underwriting be that of nursing home care and facilities.

During its several subsequent meetings, the committee was called upon to reconsider its economy measure recommendation several times. This was



necessary apparently because the members of the Professional Advisory Committee did not feel that our previous recommendation had been constructive or positive or clear. It was pointed out that the Oklahoma State Hospital Association and the Oklahoma Osteopathic Association had both requested their membership to exercise some sort of economy measures in their application of the program. These requests had been authorized and initiated by the Association heads and publicly expressed in their publications. The Professional Advisory Committee felt that the State Medical Association should take similar action. Your committee declined to make such a recommendation feeling that "In view of the services that the Department of Public Welfare wishes to provide the recipients of public welfare funds, additional money should be provided if necessary for the maintenance and continuation of the present medical care program of the Public Welfare Department. If such monies were not available, the previously recommended percentage deficiency adjustment be employed." Eventually, additional funds became available in the program and no financial emergency has yet developed.

In September, Doctor Ben H. Nicholson attended the meeting and proposed a plan whereby the welfare medical care program could be transferred, for economic operation, to Blue Cross-Blue Shield. Later, after lengthy consideration and debate, the consensus held that it would be unwise to extend such an underwriting invitation at this time. This stand was supported by the Council which also recommended continued study and consideration of the basic proposition. The wisdom of such participation by Blue Cross-Blue Shield was editorially expressed by Doctor Nicholson in the *State Journal* and later the committee published a reply which outlined the basic objections as viewed by the committee.

In its September meeting, your committee made the following recommendation:

"Each claim completed by a physician will state whether the claimant is under salary, contract or on retainer for the rendition of professional services by the hospital where the patient received his treatment. If under contract, or salaried or on retainer for such services, the claim be disallowed."

This recommendation was made in order to prevent duplicate payment for professional services by physicians whose salaries are reflected in the per diem rates computed by employing hospitals and for which they receive reimbursement. This recommendation was forwarded to the Professional Advisory Committee where it is still undergoing study and evaluation.

In October, the committee approved a final recommendation pertaining to the Medical Association's action in the eventuality of a financial crisis in the medical care program to wit:

" . . . That the President of the State Medical

Association request each physician to simply decrease the number of claims he submits for cases under his care. This would be a purely voluntary gesture which would not jeopardize the care of any eligible participant. Neither would such a request indicate that the claim be subject to question. . . ."

Such a request expressed and publicized by the President of the Association will be made at his discretion.

In the past several months, your committee has dealt with numerous problems of a relatively minor nature, and one problem which it feels is of major proportions. Since its endorsement of the entire medical care program, the Association has carefully avoided the development of a policing committee or reviewing authority, knowing full well that such dictatorial occupations are ultimately purely destructive. Part of each meeting is devoted to the review of cases where claims which have been submitted to the Department of Public Welfare appear to be improper or unreasonable. In some instances, physicians have been charged with abusing the program, a charge which we hold as generally untrue. In support of this contention, we cite the average hospital stay in August, 1958 of 9.6 days and compare it with the average hospital stay in January of 1959 of 9.4 days. Thus, in the largest measure, the program seems to be under good control and conscientious execution.

However, in reviewing area and hospital statistics, including figures for immediate readmission rates, it is unquestionably clear that there are certain areas, certain hospitals, and thus certain physicians whose utilization rates are considerably above the average.

In the opening remarks of this report, the welfare medical care program was referred to as unique. It seems prudent to reiterate this at the report's conclusion and point out that one of the most precious of these unique features is that the physician and his patient are the only initiating powers involved throughout the entire depth of the program. This feature emphasizes the need for extreme caution and good judgment on the part of each physician in consideration of each case. We must realize that a single case of gross misapplication in any given area could trigger popular repercussions which would reflect sorely upon our profession. Jointly, we must establish safeguards and procedures to make certain that such unfortunate conflicts do not arise. Therefore, it is the final recommendation of your committee that all cases, which after careful review and consideration by the Professional Advisory Committee and the Medical Association's Welfare Medical Care Committee do appear to represent excessive, unwarranted or illegal utilization of the program be referred to the Grievance Committee of the Oklahoma State Medical Association for further investigation and adjustment.

For the Committee,

MARK R. JOHNSON, M.D.

This report was considered to be both informative and to also contain a recommendation, therefore:

Doctor Paul D. Erwin, Oklahoma City, moved that the report and the recommendation be accepted. This motion was seconded by Doctor C. M. Bielstein and carried.

### Industrial Health Committee

The next report was that on the activities of the Oklahoma State Medical Association's Committee on Industrial Health, given by T. H. Mitchell, M.D., Tulsa, in the absence of the Chairman, Kieffer Davis, M.D., Bartlesville.

The Oklahoma State Medical Association's Committee on Industrial Health has had two formal meetings during the past year, as well as numerous "curbstone consultations" from time to time between its members.

Unquestionably, 1958 has proved to be the most productive year of this Committee since its reactivation late in 1955. In the past, the Committee functioned primarily in the general area of orientation of its members and the establishment of a long range program of proposed activities and objectives.

In the judgment of the Committee, our first and most important and expedient objective this year lay in the general area of liaison and education. Three avenues of approach have been embarked upon—namely:

1. Liaison with other committees of the State Medical Association, with whom the Committee on Industrial Health may have common interests.

2. Liaison with the Oklahoma University Medical School. In September, 1958, in compliance to a request made by the Dean of the Medical School to the President of the State Medical Association, the Committee on Industrial Health was designated as an advisory committee to the Chairman of the Department of Preventive and Occupational Medicine and Public Health. A very excellent relationship has been established and already many benefits have accrued to all concerned.

3. In the general area of education, the Committee sponsored a scientific exhibit on occupational medicine at the 1958 annual meeting of the Oklahoma State Medical Association. At the last meeting, held early in 1959, some 16 "short and snappy" articles prepared by members of this committee and covering various aspects of occupational medicine that might be of interest to the physician in private practice, were submitted to the Editor of our State Medical *Journal*. It is planned that each edition of the

*Journal* this year will carry at least one of these stimulating articles. Tentative plans have been made for other committee activities in the educational area, such as participation in postgraduate seminars, presentation of papers on Industrial Health before various meetings, etc., and these will be reported as they materialize.

This report was informative and required no action by the House of Delegates.

### Report of Medico-Legal Committee

The following report was given by Marshall O. Hart, M.D., Chairman of the Medico-Legal Relations Committee:

The Medico-Legal Committee is a new committee of the Oklahoma State Medical Association, which came about as the result of a recommendation proposed by the American Medical Association at its meeting in San Francisco in June, 1958. Our President, E. C. Mohler, M.D., was there and was quite thoroughly indoctrinated. On his return home, he called to ask what I thought about an interprofessional code for Oklahoma. I hesitated, because at that moment, there were some eleven cases in our county, representing in excess of four million dollars—the need was there, of course, but the possibility of accomplishment was highly doubtful.

Then Doctor Mohler no longer consulted me, but said, "you do it." He appointed a committee and we got together and talked the matter over. We procured from the A.M.A. every interprofessional code in the United States. We were very selfish in that we lifted from each of them the best, put them together, attempted to improve them, and screened them very carefully before we approached the bar. We met with the President of the Bar Association, the President of the Oklahoma Hospital Association, a member of the Supreme Court of the State of Oklahoma, President of our County Society, Doctor McDonald, a legislative representative of the A.M.A. and others. We discussed with them what the objectives were and unanimity of opinion followed.

We then set about to get a meeting with a committee appointed by the Bar. They appointed seven men to meet against our five. We got our tentative code adopted with almost complete adoption as recommended to the bar. Following that, we felt a little more competent. We took it before the Council of the State Association. It was adopted there as written with a recommendation that the attorneys for the State Association approve it, which they did without change.

The next move was to the House of Delegates of the Bar Association. The Code was read in its entirety to the House of Delegates of the Oklahoma Bar



Association in December, 1958. The Code was approved as written and published in the Bar Association's *Journal*.

Doctor Hart moved that the interprofessional code as published in November, 1958, in the Oklahoma State Medical *Journal* be approved as written. Doctor William T. Gill, Ada, seconded the motion which carried.

### **Medico-Legal Interprofessional Code**

#### **Oklahoma State Medical Association and**

#### **Oklahoma State Bar Association**

WHEREAS, The American Medical Association at its annual meeting in San Francisco, California, June, 1958, and the American Bar Association at its annual meeting in Los Angeles, California, August, 1958, adopted resolutions that interprofessional codes of understanding and cooperation be formulated by the State and County units of their respective associations, and:

WHEREAS, the Oklahoma Medical Association and the Oklahoma Bar Association have appointed committees to work together in the preparation of an Interprofessional Code:

NOW, THEREFORE, the respective committees of each association have examined interprofessional codes of other States and have thoroughly discussed the issues individually and jointly;

NOW, THEREFORE, the committees of each association do submit the following as the Interprofessional Code of Oklahoma and recommend approval of it by the Oklahoma Medical Association and the Oklahoma Bar Association.

Marshall O. Hart, M.D., Chm.	Robert D. Looney, Chm.
Tom Hall Mitchell, M.D.	John B. Doolin
Earl McBride, M.D.	John H. Gurley
S. N. Stone, M.D.	M. C. Kratz
	Gomer Smith, Jr.
	Andrew C. Wilcoxon
	Bill Wilson

### **Preamble**

The current code of ethics of the medical profession and the canon of ethics of the Bar are hereby adopted by reference as though set out herein. The professions of law and medicine owe a mutual cooperative duty to the courts and the American people. That duty and obligation is better executed when each profession has and exercises respectful understanding and cooperation. Justice is, and must always be our mutual goal, unhampered by ignorance, laziness, incompetence, perjury or self service at the expense of justice.

### **Basic Considerations**

We recognize as basic that the ethical code of both professions must be adhered to; that freedom of choice for patient or client applies both to physicians and attorneys. We further recognize that an honest cooperative attitude is needed within each profession for the members thereof and that the greatest element necessary to the success of this interprofessional code is the exercise of the Golden Rule intraprofessionally by both physicians and attorneys. Emotional instability, egotistic self service, incompetence, flamboyant exhibitionism, dictatorial dominance, wreckless and careless disregard for truth are likewise foreign and inimical to our mutual objective. The oath is a serious solemn vow not to be taken lightly nor handled carelessly. Justice, being our mutual goal, must never be sacrificed to satisfy personal convenience or monetary whims. Every litigant is entitled to his day in court, equal opportunity to present his claim unhampered by personal convenience or financial status. The physician is not a partisan in litigation and is devoid of bias, prejudice and personal interest and the attorney is the advocate representing his side of litigation to the best of his ability with an object of justice.

### **Medical Reports**

Justice demands that all evidence necessary to establish the merits of litigation be available to the court and jury. The fact that it may be difficult to procure or inconvenient to present is no acceptable excuse for failure to do so. The attorney will prepare authorization and waiver for release of information signed by the patient client and present this to the physician. This request with waiver will specifically designate the information desired. Where office records, history and physical, diagnosis, treatment, x-rays, electrocardiograms, electroencephalograms, blood, urine, and prognosis are desired the request and/or waiver will so state. Inspection of original office records and photostatic copies of the same shall be furnished upon written request where the attorney assumes the necessary financial obligation. The physician on request with waiver duly signed by the patient client will furnish the requested information. A reasonable time will be given for this. Consideration will be given to the convenience and time of the physician. Copies of other medical reports may be made available to the examining physician by the attorney.

### **Conference**

The ends of justice are better served when there is mutuality of understanding between attorney and physician. Conferences at different stages of litigation including pre-trial are recommended. Conference between attorney and physician should precede request for reports, subpoena and court testimony. Arrangements for the conference by the attorney should be scheduled to best serve the con-



venience and conserve the time for both attorney and physician. The attorney will not attempt to influence the physician in any manner concerning examinations, reports, or the subject matter thereof.

### Subpoena

The subpoena is a legal process to compel the attendance at court as a witness. Subpoena duces tecum is a subpoena ordering the witness to bring with him books, documents, office records, or other evidence described in the writ. The subpoena is a necessary and indispensable writ of justice. The physician will accept same and comply with its request. A physician may appear as a witness by agreement with the attorney or he must appear in response to a subpoena. The attorney, when he first finds it necessary to have a physician subpoenaed, should contact the physician beforehand telling him of the subpoena and explaining the necessity thereof. The subpoena of a medical witness, expert or otherwise, without notice, conference, and attempted understanding and agreement as to compensation, will be considered improper conduct.

### Medical Testimony—Expert

In many cases of litigation, especially personal injury, psychiatric and post mortem, justice requires the procurement and presentation of expert medical testimony. The Oklahoma State Medical Association will be cooperative in this matter of helping provide for all litigants the availability of expert medical testimony. The primary responsibility for this rests with the attorneys, but should they for any good and sufficient reason be unable to procure same, the Oklahoma State Medical Association will on written request cooperate to secure and furnish the names of qualified experts who will examine the client, make necessary reports and testify if necessary. Proper necessary conference and arrangements will be made by the attorney. In all cases, the convenience of the physician, the time and expense required to adequately perform the duties of the expert, and agreement in every particular concerning same must be reached. The medical expert is not an advocate, that being the exclusive role of the attorney, and he will therefore confine his remarks to his knowledge of the medical facts and opinion. Conference between physician and attorney should always be held in litigation requiring medical participation. The physician should be courteous to the cross-examiner, and vice versa. The dispatch of justice by the courts cannot be governed by the convenience of litigants, attorneys, witnesses, professional or otherwise. The physician is admonished to use language understandable to the jury avoiding, as much as possible, scientific terms and, where they must be used, explain their meaning in terms understandable to the jury. The attorney should not require the physician to wait around the court house before testifying. The attorney will, when possible, use expert witnesses out of term in order to facilitate. In testifying, the physician

must answer questions as concisely and objectively as possible, avoid bias favoritism or personal interest. Emotional flairs have little or no value in court; they lower the dignity of the proceeding and hinder the cause of justice. The examination of the medical witness should be conducted in a dignified and respectful manner. The relationship of attorney and physician should be founded on mutual respect, tolerance, courtesy, and candor. A physician should not advise on the monetary amount of damages a patient should seek to recover. Where any verified, written complaint is made by a member of either profession and where medical testimony or reports are at a wide variance, enough to raise the question of bias, prejudice, incompetence, perjury, or ignorance, this will, if thought necessary, be presented to the committee of the whole for proper evaluation and disposition. It is recognized that there can be honest competent difference of opinion. Whenever possible, the physician shall be placed on telephone call to minimize time loss in court. The attorney shall not abuse, badger, browbeat nor humiliate any witness including a physician.

### Compensation

Physicians shall never participate nor testify on a contingent fee basis. His fee, nor the amount thereof, shall not be influenced by, nor dependent upon the outcome of the litigation. The attorney may, and frequently does, represent his client on a contingent fee basis. A reasonable charge to the patient or attorney by the physician may be made for conference, examinations, preparation and rendition of reports, review of office and hospital records and research of authorities, where necessary. If settlement is had at any stage of litigation, the attorney will use his efforts to secure payment of the physician's fees. Primary responsibility for the fee is the patient litigant. The fee shall be in accordance with the prevailing practice in his community for a similar service. The physician may elect to wait for his fee, reduce it, or cancel it altogether, but it must not be contingent nor subject to fluctuation on the amount of recovery. The attorney will do everything ethical and reasonable to see that the physician is paid for his services and no charge shall be made to the physician for this service. The attorney, in dispensing money on settlement or after judgment, has an obligation to use his efforts to secure payment of the physician's fee. If the client refuses payment, the attorney should notify the physician promptly. The attorney, in a proper case, may advance payment to the physician as a reimbursable expense. At the time of his employment, the attorney may request authorization and assignment of his client for the payment of any and all medical fees in conjunction with the litigation, and that this assignment constitutes a lien on any settlement or judgment. A reasonable expert witness fee is a proper and necessary item of expense in litigation involving medical facts. When an attorney causes a physician to be subpoenaed to appear in any legal proceeding

as an expert witness, the attorney will timely appraise the physician of the subpoena before service and shall take action requesting the court, if necessary, to allow compensation for services of an expert witness. In the matter of depositions, conference and agreement will be had by the attorney as to time, place and payment.

### **Joint Medical Legal Committee**

The Medical and Bar Associations of the State of Oklahoma shall each appoint five members from their membership, who shall jointly constitute the committee. It is recommended that, when adopted by each profession, the committee membership terms be staggered from one to five years; that the committee meet quarterly, or as often as circumstance warrants; and that a quorum of the committee shall be three members of each profession; that minutes of the meetings be kept and an annual report made to each profession at its annual meeting; that chairmanship be elective and alternate between the professions. The joint committee shall:

- (a) Diligently work for a better and improved relationship between the medical and the legal professions.
- (b) Work with the courts to improve the administration of justice.
- (c) Cooperate to the end that all litigants will have their day in court, unhampered by financial status, race, creed or religion.
- (d) Consider verified written complaints from either profession, attempt to harmonize them and, where circumstances justify, refer same with or without recommendations to the grievance or other appropriate committee or body of one or both professions for consideration.
- (e) Promulgate such procedures or suggestions as found necessary to make effective the objectives of the Committee.
- (f) Report annually to each profession the work of the Committee, with any recommendations for improvement.

### **Enactment**

This code of cooperation between the medical and bar associations of the State of Oklahoma shall become effective on adoption by the House of Delegates of the respective professions and signed by the Presidents of each.

### **Rural and School Health Committee**

A report on the activities of the Rural and School Health Committee was given by the Chairman, C. W. Arrendell, M.D., Ponca City.

As you know, the Rural and School Health Committee has sponsored several rural health conferences during the past years, but very little has been done in the school health field. Since many believe that the rural health conferences have out-lived their usefulness and since the school health area has been neglected, your committee decided to promote an activity which would make a significant contribution to the health care of the young citizens of Oklahoma.

After exploring several alternatives, your committee decided to conduct a conference on athletic injuries. In the initial planning stages of such a conference, it was discovered that a similar effort was being made by the Oklahoma Chapter of the American College of Surgeons. The College representatives were subsequently contacted and a joint meeting was held at the OSMA offices on January 28 to discuss possible joint sponsorship in this area. Representatives from the Oklahoma High School Athletic Association, the Oklahoma Association of School Administrators and the Oklahoma High School Coaches Association were also in attendance.

At this first meeting, the discussion was of a general nature, but it was agreed that there was merit in a combined effort along these lines and the representatives of the various groups carried the proposal back to their organizations for approval.

On April 3 and 4, 1959, the Department of Orthopedic Surgery at the Medical School, the College of Surgeons and the OSMA sponsored a conference on athletic injuries, which was primarily conceived on a professional plane. At the April 4 session, however, the scientific program gave way to much group and panel discussion concerning the general improvement of health care in the field of high school athletics. Again, representatives from the school organizations were asked to attend and they were able to contribute much to the discussion of the many problems involved.

On the same afternoon, the physicians and school groups met again at the Association offices for further consideration of a continuing program to improve the standards of health care for high school athletes. It was decided at this meeting that introductory presentations would be made during the annual meeting of the School Administrators Association and during the Annual Coaches Clinic. Responsibilities for carrying out the overall medical phase of the program were divided between the School Health Committee and the College of Surgeons, with the School Health Committee agreeing to promote the stimulation and organization of improved health care programs for high school athletes at the local level, and the College of Surgeons undertaking an educational campaign on the prevention and treatment of athletic injuries. The overall program will be conducted as a cooperative endeavor between physicians, administrators and coaches. It will not be assumed that any one of the three groups shall have the sole authority in this field, since each will undoubtedly



have much to contribute to an effective program.

The Association Committee will meet at the close of this House of Delegates session to develop further details as to a specific program which we hope to take to the school superintendents, high school coaches and county medical societies. This should and will be a continuing program that will start small at first, then develop in accordance with the response received. The basic objectives of any such program will be to offer guides and assistance to communities in the developing of improved athletic injuries phase of the venture.

Your committee sincerely feels that a real opportunity exists on this subject and that the state and county medical societies cannot only provide a needed service to our high school athletes but, at the same time, can reap much good will in every community of the state.

It is hoped that the House of Delegates will condone and endorse this program for the succeeding year and that county medical societies will be encouraged to work with the state committee in the conduct and the realization of these ideas.

For the Committee,

C. W. ARRENDELL, M.D.

The Speaker advised that this report was informative and therefore did not require action by the House of Delegates

### **Health Care of the Aged**

The Health Care of the Aged Committee Report was given by Hayden M. Donahue, M.D., Chairman of the Committee.

#### **The Problem**

Increased longevity and basic social and economic changes during the past fifty years have contributed to the creation of a tremendous problem in regard to the health and welfare of our aging and aged population. These changes have embarked the United States into a new era; an era where a significantly large segment of our population is falling within the over-sixty-five age group. The productive force of our economy is proportionately decreasing while the young and the old groups are multiplying at a ram-paging rate.

Medical advancements that have decreased childhood death rates and materially prolonged life expectancy have inadvertently contributed to this problem. Since 1900, over twenty-eight years have been added to our life expectancy in the United States. Continued medical progress promises an even greater extension of life in the years to come.

At the same time, other changes in the development of our economic system have left their marks

on the changing pattern of life. The close-knit family has been dispersed by improved transportation and mass migration of rural individuals and families to centralized market and manufacturing areas. It is difficult to find a farm home where the productive second and third generations take care of their elderly relations in the traditional manner. Exodus to city apartments and five room housing developments has made an economic burden of what used to be a convenient and cherished privilege.

Mechanization and the centralization that accompanied it has joined forces with increased longevity to create an overwhelming problem in regard to the economic and physiological health of our senior citizens.

The problem has not gone unnoticed in legislative circles. Welfare programs have magnified beyond speculations and, recently, the Forand Bill and similar proposals threaten to provide federally-financed health care for the aged groups. Unless a unified effort is soon started to correct an apparent unmet need by providing adequate care for our aged through private sources, public pressure will open the socialistic floodgates to our people in Congress.

Despite the strong allies that medicine has in opposing the passage of the Forand Bill, it is not enough to pit force against force on this particular issue; the Forand Bill is a product of the problem, and its defeat is not a cure to its cause.

#### **A.M.A. Recognition**

Several years ago, the American Medical Association activated a Committee on Aging and set about the task of stimulating interest in this newly-recognized problem among other medical groups. Although there was much talk and writing on the subjects of aging and the aged, official medical society recognition of problems in this area was slow to develop.

Not until September, 1958, did a concerted national and local program get underway. At that time, the Council on Medical Service of the A.M.A. sponsored a Planning Conference on Medical Society Action in the Field of Aging. The theme of this conference was "To develop effective responses to the growing challenges in aging which face medicine and to coordinate present and future medical society activities at national, state and local levels."

Forty-six state medical associations, the District of Columbia, twenty-seven state health departments and nine county medical societies were represented at this meeting. Outstanding national authorities outlined all aspects of the crisis of an aging population, and a forceful A.M.A. plea was voiced for state and county cooperation in a nationwide program. A six point policy statement was issued at this time, under the title, "A Blueprint for the New Era of Aging." These points were as follows:

- 1) Stimulation of a realistic attitude towards aging.
- 2) Promotion of health maintenance programs and



wider use of restorative and rehabilitation services.

- 3) Extension of effective methods of financing health care for persons over 65.
- 4) Expansion of skilled personnel training programs and improvement of medical and related facilities for older people.
- 5) Amplification of medical and socio-economic research in problems of the aging.
- 6) Leadership and cooperation in community activities for senior citizens.

In December, 1958, the A.M.A. House of Delegates amplified point number six when they called upon state societies to promote the local development of voluntary health insurance programs and/or prepaid plans for this age group. They further asked that physicians agree to reduced fees which would permit a low monthly premium, in keeping with the recipient's ability to pay.

### Enter OSMA

Oklahoma was represented at this September meeting by the largest state delegation. Our representatives were so impressed with the magnitude and severity of this problem that the Oklahoma State Medical Association immediately set a Committee in action at the state level.

The OSMA Health Care of the Aged Committee was, at first, overwhelmed by the complexities of the multi-faceted problem. It was finally agreed that effective coverage of all aspects of aging would require a central committee to control the overall direction of the program and sub-committees to study and evaluate specific areas of the aging problem. Consequently, five sub-committees were formed to cover the following subjects:

- 1) Insurance and Retirement
- 2) Nursing Homes
- 3) Public Health and Home Care
- 4) Rehabilitation and Restoration
- 5) Research

In the beginning of committee activity, it was observed by all concerned that the first step should be to define the need in these various areas, and secondly, to isolate inequities in the care of the aged and make corrective recommendations. It was also agreed that it would be unwise to immediately encourage the creation of county society activities until such time as a definite overall state program could be outlined in detail.

While the fact-finding studies were underway, however, your committee decided to launch a general educational campaign through the *Journal* of the OSMA. Special articles by sub-committee chairmen

were started in the March issue. These articles are designed to acquaint the profession with the basic issues rather than offer solutions.

### Progress of Sub-Committees

Measurable progress of the sub-committees has been slow to develop in spite of a tremendous amount of work contributed by the committee members. The fact-finding stage of any program of this magnitude is necessarily slow, methodical and laborious. Interesting information is being uncovered, however, and it should not be too long before a comprehensive analysis can be presented along with specific plans of action for initiation at state, county, and community levels.

In the meantime, a brief sketch of sub-committee activities can be presented at this time.

### Insurance and Retirement

This group, chaired by Earl D. McBride, M.D., is undertaking a twofold effort. First, to study the company retirement policies in Oklahoma in light of educating employers to be cautious of any system of chronological retirement. The Committee has observed that altogether too many useful citizens are being forced into non-productivity and the unnecessary downgrading of their standards of living because of arbitrary and antiquated retirement policies.

Secondly, this committee has discovered a great need to extend voluntary health insurance and prepaid plan coverage to those over sixty-five. If such is done and if it is offered to these people at a price within their reduced budgets, much will be accomplished toward averting the need for Forand-type legislation.

This committee has worked with the Blue Cross-Blue Shield Liaison Committee in preparing a report along this line for presentation to this House of Delegates.

### Nursing Homes

This Committee, chaired by S. C. Shepard, M.D., has recognized the nursing home as a basic component in the realm of patient care facilities and an outgrowth of the complex economic, medical and social structure of our society.

Studies in this area have also revealed that this is a new industry which is, at the moment, suffering growing pains and in great need of help from the profession and allied organizations and agencies in raising standards and establishing a secure place in the health community. At the present time, Oklahoma has 378 licensed nursing homes, containing a total of 6,373 beds, and 142 rest homes, having 1,102 beds. While much progress has been made in raising standards through licensing procedures, there is ap-

parently much to be done to bring the quality of such care up to an optimum level.

In addition to assuring adequate, yet realistic licensing requirements, the Committee must concern itself with:

- 1) The distribution of nursing homes:
- 2) The improvement of the economic position of nursing homes so that improved standards can be realized;
- 3) A closer working relationship between nursing homes, physicians, and other health facilities.

A coordinated effort embracing higher standards, alertness to new problems, and the willingness to understand and assist in overcoming these problems is essential to a progressive, well-balanced program for the care of the aged, chronically ill and convalescent patients.

### Home Care

Under the direction of John W. DeVore, M.D., this group is in the process of forming recommendations for the increased stimulation of the use of home care and community programs in caring for the aged.

Adult education and recreation programs, visiting nurse services, homemaker's services and hot food programs are but a few of the ideas being explored as means of providing improved care to the elderly, either in or near his home. Suggested sponsoring groups for such activities include civic and fraternal clubs, Y.W.C.A.'s, Red Cross, Churches, and the Salvation Army.

The Committee hopes to have suggested guides for the creation of such activities prepared in the near future. Upon completion, the guides will be distributed to county medical societies to receive their judgment concerning local implementation.

Another future project of this committee will be to direct a study of the facilities for care of the aged throughout the state and prepare a guide to such services for distribution through county medical societies.

This committee strongly feels that there is great room for improvement in the care of the aged by the creation of such inexpensive home care and community programs as mentioned. Early discharge of hospitalized patients may often be accomplished by such programs in lieu of relegating the patient to a nursing home bed.

### Rehabilitation and Restoration

Social isolation of the aged, either within or outside the family, may be in part the result of some disability or handicapping illness. The responsibility for investigating this area of the aging problem has been assigned to Herbert Kent, M.D., and his committee.

The lack of financial resources may predispose the

aged to illness, inadequate diet, poor housing and other factors. The same lack can also account for failure to obtain early rehabilitation. All of these factors merit further study by the profession.

In order to focus attention on the rehabilitation and restoration services in Oklahoma, the following steps were undertaken by the committee:

- 1) Definition of an aged patient.
- 2) Survey of the aged population and present facilities for the aged.
- 3) A uniform physical medicine and rehabilitation program.
- 4) A spectrum of unmet needs.
- 5) Education and personnel requirements for rehabilitation.
- 6) Research goals for the aged.

To implement this project, assignments were given to individual committee members and they are now working along suggested guidelines.

To date, the findings in regard to the investigation of facilities that might be of help has been disappointing. At the present time, there are no specific services in Oklahoma that are especially organized for the aged. Only one agency, as far as can be determined, provides any aid by law, and this is through the Department of Public Welfare for qualified individuals only.

In the interest of thoroughness, however, a statewide, comprehensive survey of rehabilitation services is being conducted. A questionnaire is being directed to (1) agencies, institutions or facilities, (2) physicians and, (3) the aged patient.

The completion of this survey and the information gained from the other fact-finding activities should pave the way for some concrete recommendations in the near future.

### Research

The Committee pursuing this place of the overall problem is chaired by Leonard P. Eliel, M.D., of the Research Foundation, Oklahoma City. Doctor Eliel's committee reports that there appears to be adequate geriatric research underway at the present time. A report of these research activities is being completed at the present time.

Present plans are for this committee to assure that the members of the medical profession are kept acquainted with such research projects and findings.

### White House Conference

Another project of the central committee involves participation in a state Pre-White House Conference on Aging.

During the last session of Congress, a bill was



passed which provided for a White House Conference on Aging to be held in Washington in 1961, and, at the same time, made provisions for \$15,000 grants to each state to conduct similar conferences or studies in preparation for the national meeting.

Your committee was first tempted to divorce itself from this government-sponsored program. Upon further reflection, however, it was decided that medical withdrawal would not prevent the occurrence of such a program, but would merely permit domination of Oklahoma's participation by pressure groups of a different philosophy.

For that reason, your committee requested Governor Edmondson to direct this grant to the Extension Division of the University of Oklahoma, where it was felt that an impartial, statewide study could most likely be made.

It was also requested that this project be a study rather than a conference since we are dealing with too many unknowns. The Governor was also prevailed upon to see that the study was made under the direction of a steering committee, upon which the medical profession would have ample representation. It is our understanding that such an arrangement will be forthcoming.

### Summary

During the relatively short time that this committee has been engaged in the study of present and future problems associated with the aging and aged segments of our population, it has become alarmingly evident that organized medicine is standing on the threshold of a severe test. Organized labor is vociferously supporting the passage of the Forand Bill and the main political parties have begun cultivating friendship of the one voter out of four who is in the over-sixty age group.

Within the next few days, if not sooner, political and public pressure will demand a federal program to finance the care of the aged. When and if this happens, fifteen million persons will join the ranks of the regimented for want of an alternative.

In the meantime, an effective alternative can be provided; an alternative designed upon the principles of individual and local responsibility. The elderly can be offered a chance to preserve a small share of their independence, without sacrificing their health or welfare.

Medicine is thereby presented with a unique challenge. If this challenge is answered with a program of positive action, we can accomplish our civic duty and play a vital role in the direction of our destiny.

Much needs to be done and there is little time left. Your committee, therefore, finds it imperative to recommend that the work undertaken be continued and given a high priority in the overall association program.

Your committee does not stand alone in working toward a solution to the problem of the aged. As a postscript to this report, it is significant to note that the American Medical Association Committee on Indigent Medical Care is chaired by John F. Burton, M.D., Oklahoma City.

The report being informative, required no action of the House of Delegates.

### Report on Health Insurance for Senior Citizens

Doctor Hayden H. Donahue reported that the Committee did not feel that they had time, prior to the House of Delegates meeting, to present an adequate program with minute details, but offered the following report and recommendations:

This committee is a composite group that has drawn its members from the Blue Cross-Blue Shield Liaison Committee and the Health Care of the Aged Committee. The two committees have been working jointly to evaluate the propriety of developing health insurance plans for the over sixty-five age group.

Before reporting on the activities of this Committee Mr. Chairman, it seems necessary to digress for a moment and briefly discuss some of the problems which have brought about the creation of this Committee and contributed to the recommendations to be made before this House of Delegates.

Organized medicine has long served as a vanguard of free enterprise throughout the socio-economic development of our country. On several occasions, it has become necessary for physicians to rise collectively and successfully present an organized front against governmental intervention into the field of health economics. These victories have represented battles won and not wars won, for the war against strong central government is one of a chronic nature that will permit little rest for those who seek to preserve or reclaim a proper balance between governmental health programs and private enterprise.

American medicine has all too frequently been accused of a negative attitude toward any changes in the methods of providing high quality health care to our citizens. Such statements are in error—changing health needs and the challenges presented thereby have been met with constructive action; action that has been founded upon sounder principles than those offered by federal planners.

Despite concerted efforts to maintain a sensible ratio between government and private enterprise, piecemeal legislation has established an alarming trend in the methods of financing health care. Each session of Congress sees more health bills introduced and more passed—and each new law swings the pendulum farther away from the free enterprise medical care system. Each year, more and more of our citizens fall victim to health care regimentation and sacrifice another one of their rights to be individuals.



Again we are faced with a new challenge! For two successive congressional sessions, the passage of the Forand Bill has hung ominously in the balance. It was stopped in committee in 1958 and will likely fail again this session. But informed sources look upon these blessings as merely reprieves—reprieves that will not be extended past 1960 and 1961!

Briefly, the Forand Bill will provide medical, dental, hospital and nursing home care for about fourteen million social security recipients who are over age sixty-five. The cost of a maximum of sixty days hospitalization and a subsequent maximum of one hundred twenty days nursing home care during any twelve month period would be paid from the O.A.S.I. Trust Fund. To secure funds, it would be necessary to increase the tax rates to the extent that the self-employed group would pay  $7\frac{1}{8}\%$  of the first \$4,800 income by 1969.

None of us will agree to such a legislative solution to a health problem. Yet, it would be difficult to argue that there is not a great need for more adequate machinery to enable our elder citizens to finance high-quality care—particularly when we look past the immediate problem and see a future of increasingly large numbers of elder citizens. In addition to the fourteen million presently over age sixty-five, there are an estimated twenty-two million persons over sixty. The combined total amounts to one-quarter of the voting population of the country!

From 1900 to 1950, the population doubled and the number of people age sixty-five quadrupled. There is little reason to believe that this trend will not continue—some predictions estimate that, ten years from now, over one-half of the population will be in that particular age group! We are rapidly becoming a nation of the young and the old!

With an expanding aged population facing us and with the immediate threat of Forand-type legislation, it seems evident that medical men and other believers in free enterprise must take positive steps for the present and future care of our aged. It now seems apparent that medicine must deliver a counter-punch to government-financed health care by developing a voluntary financing system that will destroy the need for government intervention.

Recognizing these problems, and the role that organized medicine has played in the development of prepaid health plans and voluntary health insurance, the American Medical Association House of Delegates took the following action at the December, 1958, meeting in Minneapolis:

"For persons over sixty-five years of age with reduced incomes and very modest resources, it is necessary immediately to develop further the voluntary health insurance or prepayment plans in a way that would be acceptable both to the recipients and the medical profession. The medical profession must continue to assert its leadership and

responsibility for assuring adequate medical care for this group of our citizens.

"Therefore, the Council on Medical Service recommends to the House of Delegates the adoption of the following proposal: That the American Medical Association, the constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the group over sixty-five with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group, which will permit the development of such insurance and prepayment plans at a reduced premium rate."

In conformance with the A.M.A. action, the OSMA committees, already concerned with the problems of the aged, held a series of joint meetings in this regard. During these meetings, the joint group discussed a variety of alternate plans to meet the health cost problem for this age segment. Finally, the need for a cautious approach to this problem conflicted with the time element and it was decided that the proposal to this House of Delegates would be based upon certain principles rather than on the submission of a specific program.

The group, therefore, approved the following motion which it now respectfully offers for your consideration:

"It is recommended:

1. That a service-type health insurance program be approved for the sixty-five and over age group.
2. That service benefits be offered to those whose income and net worth fall below approved ceilings, with \$6,000 as the suggested income ceiling.
3. That it be stipulated that the following points be taken into account in the development of such a service contract:
  - A. Physicians and hospitals are to be offered the best possible fees, in keeping with a saleable premium.
  - B. After allowing ninety days following the annual meeting for the development of the program, a special meeting of the House of Delegates will be called to ratify, reject or modify the proposal."

At the conclusion of the report on Health Insurance for Senior Citizens, Doctor Gallaher asked the House for the disposition of the recommendations contained in the report.

Doctor Joe L. Duer, Woodward, moved that the recommendations contained in the report be adopted. The motion was duly seconded.

Further discussion was held and Doctor L. H. Ritzhaupt, Guthrie, made the following substitute motion:

That the word "service-type" (Item I of Recommendation) be changed to "indemnity or voluntary," and

that Item 1 be divided into two sub-divisions, and would now read as follows:

1. That an indemnity or voluntary health insurance program be approved for the sixty-five and over age group:

A. Who benefit by the Social Security Act.

B. Who are on the Public Welfare Rolls because of total disability.

This motion was seconded by W. T. Gill, M.D., Ada, but failed to pass when put to vote by the House of Delegates.

After the substitute motion made by Doctor Ritzhaupt was defeated, a discussion of the report ensued. The Speaker called for questions or further discussion, and reviewed the original motion of Doctor Duer's and a vote was taken.

The motion carried and the recommendations contained in the report of the Health Insurance for Senior Citizens were adopted as read.

This concluded the reports of the Association's Committees.

Doctor Gallaher announced that the Introduction of Resolutions was the next order of business, and that they would be introduced by title only at the opening session, referred to the Resolutions Committee, and formally acted upon in the closing session of the House of Delegates. The following resolutions were introduced:

A Resolution extending Associate Membership to Doctor Thomas M. McCoy, M.D., Director of the Noble Foundation of Ardmore, Oklahoma, was introduced by J. Hoyle Carlock, M.D., Ardmore.

A resolution from the East Central Medical Society regarding A.M.A. dues was introduced by Shade D. Neely, M.D., Muskogee.

Doctor Gallaher further announced that Resolutions could also originate in the Resolutions Committee.

The next order of business was the Introduction of Amendments to the Constitution and By-Laws.

Doctor W. T. Gill, Ada, reported that an amendment to the Constitution proposed at the last House of Delegates meeting would be acted upon in the closing session.

It was announced that there were two proposed amendments to the By-Laws, (1) pertaining to Honorary Life Members, and (2) the Make-Up of the Grievance Committee.

The Speaker announced that the Resolutions Committee would meet in Room 716 at the Mayo Hotel, and that the Constitution and By-Laws committee would meet in Room 1301 at the Mayo Hotel.

Doctor Gallaher advised that the last order of business in the Opening Session of the House of Dele-

gates would be the reading of the Necrology Report. Doctor Gallaher turned the Chair to Doctor Carlock for the presentation of the Necrology Report.

Doctor Carlock requested that the Delegates stand during the reading of the Report.

## Necrology Report

Since the last Necrology Report, May 4, 1958, the Almighty in his infinite wisdom has called from our midst thirty-two (32) of our beloved friends and co-workers. While we bow in sorrow to the will of the Almighty, we are appreciative of these wonderful men-physicians, scientists, teachers and friends, and their far reaching influences which will continue to inspire us to carry on their duties to humanity.

THEREFORE, BE IT RESOLVED, That the House of Delegates of the Oklahoma State Medical Association recognizes the demise of these former fellow physicians and instructs the Secretary to inscribe with honor and regret the following names upon the record of the Association.

Thomas McKinney Berry, M.D.	El Dorado
Benjamin Thomas Bitting, M.D.	Enid
Lucile Spire Blachly, M.D.	Oklahoma City
George R. Booth, M.D.	Wilburton
Joseph Gideon Breco, M.D.	Corpus Christi
Joseph Clayton Canada, M.D.	Tahlequah
Albert Cates, M.D.	Oklahoma City
William Bruce Catto, M.D.	El Reno
Chonnar Polk Chumley, M.D.	Chickasha
William Shell Crawford, M.D.	Tulsa
John Fielden Hackler, M.D.	Muskogee
Albert Ernest Hennings, M.D.	Tuttle
Frank Martin Keen, M.D.	Shawnee
William Wilburn Kerley, M.D.	Anadarko
George Althouse LaMotte, M.D.	Oklahoma City
William Louis Mabry, M.D.	Duncan
David C. McCalib, M.D.	Colbert
Andy Singleton Melton, M.D.	Okemah
Cannon Deugar Moore, M.D.	Oklahoma City
James T. Moreland, M.D.	Idabel
Daniel William O'Leary, M.D.	Norman
Alvin W. Paulson, M.D.	Oklahoma City
James Ira Payte, M.D.	Oklahoma City
Ollie Walker Rice, M.D.	McAlester
Charles Lewis Rogers, M.D.	Canton
James Winston Rogers, M.D.	Tulsa
Burl Eugene Stone, M.D.	Lawton
Charles Benjamin Taylor, M.D.	Oklahoma City
Harl T. Vandever, M.D.	Enid
Seals Leftwich Whitely, Jr., M.D.	Durant
Napoleon K. Williams, M.D.	McCurtain
Leonard Scott Willour, M.D.	McAlester

Following the reading of the Necrology Report, the Speaker announced that the House of Delegates of the Oklahoma State Medical Association, Opening Session, would stand at recess at 4:25 p.m. to reconvene at 5:00 p.m.

Reported by Margaret Bowen



# Editorials

## **We Are Playing for Keeps**

The House of Delegates approved the Committee on Aging's report, that a plan for a service contract for people over 65 be developed and brought back to an extraordinary session within 90 days for approval, modification or rejection. The time is almost up. To many this is a negative thing—an answer to the Forand Bill—a means of delaying full socialization of medicine. To others it is a positive thing—an opportunity for medicine to solve one of the most pressing problems of medical care—and to do it her own way.

To those who think negatively the Committee's proposal will have to be palatable, for they are interested only in maintaining the status quo while putting off socialized medicine. Those who think positively will be willing to forego some of the palatableness in order to make the program solid, for they are interested in demonstrating to the public that medicine can and will solve medical-economic problems for the public without sacrificing the essential ingredients of the private enterprise system.

The Committee's report will, very likely, present something of a compromise between the negative and the positive. It seems fitting, therefore, at this time to point out certain areas in which the foundation must be deep and strong. We cannot afford a collapse even though we know full well that experience will dictate changes to strengthen and to modify.

### **The Medical Profession**

The weakest link in the chain of structure will be the selfish physician. The Association has been unable to control him and the committee's program cannot be expected to. As long as there is a chance to cheat there will be people even within the medical profession who will. This is not just conjecture. Blue Shield had to revamp its program for extended benefits because some surgeons doubled and sometimes even tripled their usual fees for operations for cancer if the patient had extended benefits. Since vasectomies are not covered by Blue Shield and

operations for hydrocele are, the former are shamelessly diagnosed as the latter by some. The Department of Public Welfare is now faced with serious cheating problems, which not only threatens a very fine program but discredits the medical profession.

Neither the Association nor the Committee can build a fence that a pig can't get over, under or through—nor should they try. We are playing for keeps and we are badly in need of another class of membership—a probationary one—a sort of purgatory from which a man must in time either work himself out or be dropped. Instead of fences which will not hold, the spirit of the program could then be defined in terms of its objectives. A committee of colleagues in medicine but not competitors in practice could use this definition to determine unfairness which if it exists can result in probationary membership for the offender. We should not continue to permit membership in the Association to serve as a cloak of respectability for those who discredit it as well as all medicine.

### **The Hospitals**

The hospitals have much less to fear from socialization of medicine than do we, and it is axiomatic that what is good for us is good for them and vice versa. It is therefore well that both the profession and the hospitals work together. If hospitals are required to pay more to keep a patient in this category than they receive for doing so, they must either go broke or pass the extra cost on to their other patients who are paying their way. The hospitals cannot be expected to support us if we insist on provisions that would jeopardize their very existence.

### **Morale**

If the profession's interest in the success of a program is to be sustained, galling experiences must be avoided. To be stuck with the provisions of a service contract when the patient and hospital are not can be galling indeed. When a patient of his own volition or his family select for him accommodations and services not provided for by his



service contract, then the physician should be released of obligation to abide by the service contract, provided the responsible people are advised of this change in status at the time other accommodations are requested or as soon as the physician is aware of the change.

### **The Long Stay Patient**

This is the most serious impediment to a financial successful program. The immediate solution is not apparent to me, but it seems obvious that no plan can service and maintain a great number of long stay patients at general hospital rates. It is also clear that no hospital can survive and continue to keep those patients after payments are discontinued. It is further clear that a bed occupied by a long stay patient cannot be used for the hospital care of other people who are in need of it.

The experience of the Department of Public Welfare should be a great help in our thinking about the long stay patient. During a 12 month period ending April 30, 1959, the case load of Old Age Assistance was 100,433 and there were 28,717 hospital claims. This means that the number of claims was 28.5% of the number of people enrolled. Of the 28,717 claims, 1,325 were for people who were hospitalized for 30 days or more. It is quite obvious from the record that many of these people were being readmitted over and over again to a general hospital because they had no place to go or could not be managed in a nursing home. The maximum allotted period for one hospital stay is 21 days. The physician's pay for 21 days is the same as for 10 days.

A fair number of physicians figured this one out and discharged the long stay people requiring only custodial care at the end of 10 days, or 14 days putting in another claim for \$50.00 that much sooner.

The real lesson here, however, is that the State Welfare Department is paying general hospital rates for convalescent and custodial care which amounts to about \$550.00 per month. For nursing home care the department pays \$120.00 per month. There is no provision for a facility in between. If the Department could find a means of paying a per diem adequate for the development of decent convalescent facilities—patients

could be removed from general hospitals for their convalescent care at a great saving and at the same time provide a stimulus for the establishment of these facilities. This would be a major step toward helping in the solution of the problem of the long stay patient which faces our committee and the hospitals.

### **Drugs**

The physician must be aware of the fact that a major item in any service plan of hospital care is drugs. Drugs are a major item for the pocketbook of these people after they go home, or are in a nursing or convalescent home. In fairness to all concerned where aspirin, or bromides, or chloralhydrate, or phenobarbital, or the simple sulfa drugs, or penicillin will do, there is little need for fancier preparations. The cost of many of the newer drugs is staggering. This does not mean that the sick should be denied anything they really need, only that one be sure that the need exists.

### **The Cost of a Service Contract**

The experience of Blue Cross shows that there are about two and one-half times as many days paid per 1,000 members for hospitalization for the age group 66-70 as for the group age 36-40 and almost four times as many in the group over 70. This obviously means that the cost of a contract to a man over 65 will not be cheap. It may not be within his means at all. Maybe the contract should be written for all ages who have an income less than that contemplated by the committee. You say this isn't fair to the younger ones. It is already being done. The 36-40 group not only helps those older but also younger. The group from 26-50 help those 51-55 who in turn contribute some to the support of the program for those 56-60 who in their turn help the ones who are still older. This, I suppose, is the principle support of all group plans and all insurance—that those who will not use their benefits make it possible for those who will to secure the protection. Perhaps for a tiny increase all along the line the old folks could be offered a plan well within their means and no one would be hurt, and at the same time all people in this income category would be assured the means of obtaining adequate medical care.—*B.H.N.*

## Inflammatory Disease of the Small Intestine\*

REGIONAL ENTERITIS affects mainly young adults and is characterized by abdominal cramps, diarrhea, fever, loss of weight, anemia, and perianal abscesses and fistulas. The lesions usually are limited, in both initial and recurrent cases, to the terminal portion of the small bowel. But although this location is the expected one, regional enteritis may be found anywhere in the small intestine, either in localized or in diffuse form.

The lesions are characterized by a granulomatous, necrotizing, ulcerating, and cicatrizing process and frequently are accompanied by fistulas arising from the lesion in the small bowel and extending into the neighboring viscera or through the abdominal wall.

In one series, 334 were males and 266 females, a ratio of 1.3 to 1. The condition may occur at any age. In this same group, the age at onset varied from 4 to 74 years. However, in 55 per cent of the cases, the onset occurred between the ages of 16 and 30 years.

\*Read at the meeting of the Oklahoma State Medical Association, Tulsa, Oklahoma, May 5, 1958.

\*\*The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

J. ARNOLD BARGEN, M.D.

J. Arnold Bargaen, M.D., Professor of Medicine at the Mayo Foundation and the University of Minnesota, graduated from Rush Medical College in 1921 and is certified by the American Board of Internal Medicine.

Doctor Bargaen is Co-Chairman of the Central Committee of the World Congress of Gastroenterology, a member of the Editorial Board of Gastroenterology and a member of the Advisory Board of Sears-Roebuck Foundation.

In addition, Doctor Bargaen is President of the Minnesota State Medical Association, a Delegate from Minnesota to the A.M.A., President of the Minnesota State Board of Medical Examiners and Past President of the American Gastroenterological Association.

This paper is from the Section of Medicine, Mayo Clinic and Mayo Foundation\*\*, Rochester, Minnesota.

Of the 600 patients with regional enteritis who came to the Mayo Clinic before 1950, 342 underwent a total of 377 resections of the bowel for this disease at the clinic, and 198 of the patients were not subjected there to any surgical treatment of any kind. This indicates that in the years prior to the present decade surgical treatment was the treatment of choice in regional enteritis. This approach has changed gradually, as will be

pointed out when results of treatment are considered.

*Complications. Abscess and Fistula.*—Probably the commonest complication of regional enteritis is an abscess in or around the bowel and the subsequent formation of a fistula. The frequent coexistence of abscesses and fistulas appears to be more than coincidental.

Two general types of abscess and fistula are (1) the intra-abdominal and (2) the ischiorectal. To begin either of these, the ulcerative process in the bowel extends through the wall of the bowel—and this happens frequently. In the intra-abdominal type, extension of the process may perforate a neighboring viscus, thus forming a complete fistula; or on the other hand, if the peritoneum does not adhere firmly and completely to the surrounding parietes, an abscess develops. This abscess may rupture into an adjoining viscus, for the abscess extends in various directions if limiting adhesions are deficient.

Ischiorectal and perirectal abscesses develop from infected anorectal crypts. Such complications in this region are less common than the intra-abdominal; but even so, the frequency of this condition is striking.

*Obstruction.*—Partial obstruction may occur early in cases of regional enteritis as a result of edema and cellular infiltration of the bowel wall. Later, proliferation of fibrous tissue aids in the production of obstruction, and sometimes the process becomes irreversible. Surgical intervention in this type of case is imperative.

*Intestinal Bleeding.*—Six per cent of the series of 600 patients mentioned gave a history of initial intestinal hemorrhage. Occasionally the bleeding is in the form of a massive intestinal hemorrhage. The blood may be red, but is more likely to be black and tarry.

*Deficiency States.*—Various degrees of deficiency states are encountered in the association with the initial and recurrent lesions of regional enteritis. They can represent a number of causes. At times involvement of the bowel, greater than can

be demonstrated clinically or roentgenographically, results in a state similar to that seen in the sprue syndrome. This is relatively rare. There is also the factor of gradually diminishing intake of food as a result of anorexia and fear of the colic that occurs after eating. Then, too, the absorptive surface of the bowel is materially interfered with in some of these cases. In the past, deficiency states in the absence of demonstrable recurrence have seemed to support the position that the remaining normal part of the small bowel is unable to perform adequately its function of absorption.

*Arthritis.*—Polyarthritis of the rheumatoid type, involving particularly the extremities and small joints, was encountered in 4.5 per cent of the 600 patients studied.

*Erythema Nodosum and Pyoderma Gangraenosum.*—These complications are seen rarely in regional enteritis, as compared to their frequency in ulcerative colitis.

*Treatment.*—Indications for surgical intervention in regional enteritis are related closely to the complications mentioned. Whereas at one time surgical treatment was suggested as soon as the diagnosis of regional enteritis was made, today surgical intervention is used largely for the complications. The reason for the changed attitude is not the risk of operation but the frequency of recurrence after surgical exclusion or resection.

Of 600 patients, 402 were subjected to definitive surgical treatment; and of these, 400 survived the operation. In 135 of the 400 who survived definitive surgical measures, the disease remained arrested for the duration of this study. In another 135, the disease recurred. Sixty per cent of the recurrences developed within the first year following surgical operation.

The other 198 patients were treated non-surgically with a variety of methods and adjuncts including diet, sulfonamides, antibiotics, steroids, and roentgen therapy. Because of our facilities, we most often use 130 kv. in treatment rather than 200 kv. The anterior abdominal wall is blocked off into four fields, two on each side of the line extending from the xiphoid to the pu-



bis. We give one field one treatment on one day with about 135 r. If the patient is in fairly good condition, we give the four treatments in four days. If he is not, we divide the treatment into half sessions. Most patients do not get sick enough to require pyridoxine but we usually give it as a precaution. If the patient is stout, or if our 200-kv. machines are free that day, we use 200 kv. with a dose of about 125 to 150 r. as before.

*Survival and Recurrence.*—Of the 198 patients treated nonsurgically, 123 were known to be alive at the time this study was completed. Twenty-four were known to have died, and 51 were lost to follow-up.

At the end of 10 years after the diagnosis was made, 81.1 per cent of the patients with regional enteritis were alive. This finding is to be compared with an anticipated survival of 97.4 per cent of persons in similar age groups in the general population during a given decade. Thus it can be said that while the problem of recurrence is rather threatening, the problem of survival is not.

In only 39 patients did the disease develop after the age of 50. Only three of these are known to have had a recurrence of the condition. A complete follow-up study of the 39 has not been made, but no reports of recurrence have been received from the others.

#### **Granulomatous Lesions of the Stomach and Upper Part of the Small Bowel**

In recent years we have found a nonspecific granulomatous inflammation involving the duodenum and stomach, and at times the jejunum as well, and pathologically resembling the so-called regional enteritis. This is not well recognized, for when Comfort, Weber, Baggenstoss, and Keating wrote their article about it in 1950, only two other cases reported in the literature had included involvement of the duodenum. The condition is relatively rare, but occurs frequently enough to warrant the attention of every physician and particularly those interested in making accurate diagnoses and differential diagnoses of gastrointestinal problems. So far, we have found no better designation for this condition than "nonspecific

granulomatous inflammation of the stomach and intestinal tract."

The histories presented by these patients are well illustrated by that of a man first seen in January, 1932, when he was 26 years old, with a history of episodic, dull, diffuse upper epigastric pain, occurring 20 to 30 minutes after meals and associated occasionally with vomiting. These episodes had been occurring for three years. At times the pain was limited to the periumbilical area and then was dull and constant but was aggravated by eating. He vomited once or twice daily, the vomitus consisting of food eaten at previous meals. There was no hematemesis. Roentgenologic studies revealed only abnormal motility in the upper coils of the jejunum associated with some dilatation. Surgical exploration revealed extensive hyperplastic jejunitis involving six to eight feet of jejunum, with the bowel being three or four times larger than normal. The inflammation extended into the mesentery of the bowel. A small amount of straw-colored fluid was found in the peritoneal cavity. The remainder of the bowel appeared normal under gross inspection.

Most of the cases we have seen of this condition have had the following clinical features: (1) a continuous and intermittent upper abdominal distress that is intensified by the ingestion of food, a loss of weight and strength, and nausea and occasional vomiting; (2) diarrhea, steatorrheal and episodic in type; (3) gastric retention demonstrated by a succussion splash and by morning aspiration in the fasting state of larger than normal amounts of gastric content; and (4) evidence of deficiency of absorption.

Roentgenologic evidence indicates disturbance of the motility of one or more portions of the upper part of the gastrointestinal tract, persistent or transitory constriction, and proximal dilatation of bowel. Atony and ineffectiveness of peristalsis are typical, and in some cases emptying and dilatation of the stomach and constriction of the first, second, or third portions of the duodenum were found. Constrictions were tubular, without sharply demarcated orad or caudad extremities. Within the constrictions, the

relief pattern of the mucous membrane was markedly subdued or absent. Lesions removed, as they were in some cases, had features similar to those found in regional enteritis except that possibly the evidence of hyperplasia was greater. The tubercles, in particular, were identical microscopically with those described in and pathognomonic of regional enteritis.

The granulomatous lesion and its associated conditions must be distinguished from idiopathic steatorrhea and of course from duodenal ulcer and neoplasm of the upper part of the digestive tract. Sometimes there is enough disturbance of intestinal absorption, giving symptoms of disturbed absorption and macrocytic anemia, hypolipemia, hypoprothrombinemia, and hypocalcemia, to make it difficult to distinguish it from an advanced state of the condition known as nontropical sprue.

Clinically, however, the findings of impaired motility with transitory or permanent constriction of the bowel should distinguish the effects of granulomatous lesion from idiopathic steatorrhea.

#### **Nonspecific Ulcers of the Small Intestine**

In addition to the ulcers of regional enteritis and the granulomatous lesions of the upper digestive tract, single nonspecific ulcers may appear in the small intestine.

The etiology of these lesions is usually an enigma. Possible relations to trauma, peptic and tryptic digestion, gastric heterotopia, infection, and infarction have been investigated; but no direct relation has been found.

The prodromal signs and symptoms occasioned by these ulcers are so mild and so indefinite that the patient may not seek medical care until hemorrhage, obstruction, or perforation develops. Occasionally such ulcers are observed at abdominal exploration in cases without previous symptomatology pointing to such a condition. Although this is a rare happening, the possibility is one to be remembered in the diagnosis of indeterminate and rather severe and episodic abdominal pain.

In some cases, a history of vague abdominal pain is the only symptomatic clue. Most

patients, however, have recurrent bouts of intermittent crampy midabdominal pain, whose character and persistence usually suggest partial obstruction of the small bowel. In the cases in which obstruction is most severe, vomiting is a rather constant symptom.

Sometimes early manifestations masquerade as ulcer dyspepsias; in others there are concealed bleeding and a refractory form of anemia. Bouts of alternating constipation and diarrhea sometimes precede the commonly observed phenomena of intermittent partial obstruction of the small intestine. The latter is a very common associated situation, and if a patient has periodic partial or complete intestinal obstruction, this type of ulcer should be kept in mind.

Preliminary roentgenologic surveys of the abdomen give useful information in some of these cases by revealing the presence of gas-filled loops of small bowel, and examination tends to place the obstruction proximal to the ileocecal valve.

In nine patients observed over a period of years, the roentgenologist cautiously introduced a thin suspension of barium in a modified motor-meal technic. In six of the nine it was possible to delineate the level of the obstructing lesions, and in four the roentgenologist's opinion was that the condition had an inflammatory basis. So far as we know, the only treatment in such cases is surgical resection.

Usually solitary but occasionally multiple, these ulcers produce clinical effects by causing intestinal obstruction, by loosing gastrointestinal hemorrhage, or by rupturing and forming an abscess.

This presentation is not concerned with the ulcers found as a result of the impaction of a cholelith or foreign body of some kind in the small intestine, nor is a history of prior irradiation with roentgen rays of any kind considered.

#### **Meckel's Diverticulum**

The most common congenital anomaly of the intestinal tract is Meckel's diverticulum. One of every 50 children is said to have it. The next most common congenital anomaly,



namely hypertrophic pyloric stenosis, affects one of every 200. All other congenital anomalies are said to occur in the ratio of one in 1000 or more persons.

There is a "rule of two" that is helpful in remembering some facts about the anatomy of Meckel's diverticulum. It occurs in approximately two per cent of the population. It occurs in two males to one female. The diverticulum is usually located about two feet proximal to the ileocecal valve. Its length averages about two inches. Of course great variations from this average rule have been reported occasionally. Actually, the diverticulum may be located anywhere between the pylorus and the ileocecal valve. Ordinary lengths may vary from 2.5 to 12.5 cm., and a Meckel's diverticulum 56 cm. in length has been reported.

Usually the wall of a Meckel's diverticulum is made up of tissue like that of the adjoining ileum. However, the incidence of heterotopic tissue in Meckel's diverticulum is high. These observations are of some interest when lesions of the diverticulum, such as ulcers, are under consideration.

*Symptoms.*—It is generally agreed that a quarter of the patients who have Meckel's diverticulum have symptoms of one kind or another. Yet because of the location of the diverticulum the diagnosis is exceedingly difficult. The patients may have distress in the lower abdomen or they may have an atypical ulcer distress. The entire symptom complex of peptic ulcer may be mimicked, except that the pain is usually periumbilical or to the right and below the umbilicus rather than hypochondriac.

The symptoms due to Meckel's diverticulum are not unlike those produced by inflammation of the appendix vermiformis. There may be associated fever, right lower abdominal tenderness, and all the other concomitant symptoms of appendicitis. However, the pain of Meckel's diverticulum is much more likely to be periumbilical. The common distressing complication of Meckel's diverticulum is hemorrhage. This may occur in an acute, massive form, or as recurrent mild episodes of bleeding. When children less than two years of age have bleeding from Meckel's diverticulum, it usually is

massive, and it has been so severe as to produce hemorrhagic shock.

*Complications.*—Gastric mucosa, jejunal and duodenal or colonic mucosa, and pancreatic tissue may be found in Meckel's diverticulum. Gastric mucosa is by far the most frequently found of the tissues mentioned and is the only kind consistently associated with symptoms. In children, heterotopic gastric mucosa is the most frequent cause of symptoms and, as would be expected, peptic ulcer is the most frequent complication resulting from this disorder. The ulcer, when it does occur, is found usually in the intestinal mucosa adjacent to, but not actually in, the heterotopic gastric mucosa. Most often the ulcer is situated at the neck of the diverticulum or in the small intestine just beyond its neck. However, ulceration has been demonstrated in diverticula in which no trace of gastric mucosa was evident.

*Diagnosis.*—Thus the symptoms and signs indicating the presence of Meckel's diverticulum are those of its complications. Although in some instances constriction of the diverticulum resulting from the outpouring of the secretions from heterotopic gastric mucosa could well cause symptoms, the most common symptom indicative of a disease condition in the diverticulum is the passage of fresh blood from the rectum.

If the disease progresses without surgical intervention, the signs and symptoms of perforation with diffusing peritonitis may appear. If the diverticulum causes intestinal obstruction, the well-known clinical appearance of obstruction is presented.

Few diagnostic aids are of any help in arriving at the finding of Meckel's diverticulum. Theoretically a roentgenologic examination would be of great value, but actually the evidence is unclear because the diverticulum already is full of secretion. The histologic characteristics of Meckel's diverticulum are similar to those of diverticula anywhere in the digestive tract.

*Series of 161 Cases.*—Weber and Good<sup>1</sup> have reviewed the records of patients who were found to have Meckel's diverticulum at operation at the Mayo Clinic from 1935 through 1946. Of 161 patients operated on,



32 had had preoperative roentgenologic examinations of the small intestine. No roentgenologic evidence of abnormality had been found in 15 of these 32. In six of the 15, the diverticula were incidental findings in the course of operations for other abdominal lesions; in the other nine, the diverticula were considered to be related to the patient's abdominal symptoms and signs. A definite roentgenologic diagnosis of Meckel's diverticulum was made and confirmed at operation in seven of the 32 cases. The roentgenologic diagnosis of ulcerohyperplastic ileitis was made five times. The diagnosis was verified at operation in every instance; but Meckel's diverticulum was present also as an incidental finding in three of these five cases, was involved in the ulcerohyperplastic process in one, and was involved with a linear ulcer on the mucosal surface in the other. In another case, the roentgenologic diagnosis of constricting neoplasm of the ileum was made. At operation the lesion proved to be an ulcerated diverticulum; the inflammation extended to the ileum both proximal and distal to the mouth of the diverticulum. In a further instance, the roentgenologic examination revealed a mild and moderate degree of ileal obstruction but the nature of the obstructing process was not determined. The diagnosis of obstruction was verified at operation, and Meckel's diverticulum was found responsible for it.

#### **Acquired Diverticulum**

Just as in the large intestine, acquired diverticulum of the small bowel is a change of old age. In some individuals these diverticula are very few and occur only late in life, in others they occur rather early; but rarely in any instance do they appear before the age of 50.

Sometimes they are very numerous, so that almost the entire small intestine is filled with pockets. Fortunately they rarely become inflamed, but occasionally this happens if food particles get caught and inflammation sets in. Then the symptoms are similar to those of Meckel's diverticulum. More often, acquired diverticula simply cause indigestion and intestinal irritability and are associated with a so-called irritable bowel syndrome.

Seen recently at the clinic have been several patients, all elderly men, with extensive diverticulosis of the small intestine. In one instance the diverticulum has become so large as to cause impaction, secondary inflammation, and intestinal obstruction. This had developed so slowly that the patient presented with a sprue-like syndrome. Excessive excretion of fat in the stools, macrocytic anemia, considerable loss of weight, and periodic abdominal cramps were recorded. A thorough examination revealed an obstructive lesion of the small intestine. Operation was advised, a portion of the bowel was resected, and the patient recovered completely. The macrocytosis eventually disappeared and the stools became normal.

In another patient acute inflammation occurred within several of the diverticula, so that a deficiency syndrome with steatorrhea, macrocytosis, and other accompanying symptoms developed. The macrocytosis and anemia were marked. After a period of suitable diet and injections of B<sub>12</sub>, the patient's condition returned to normal and the macrocytosis came under control.

The illustrations are cited only to show that occasionally the extensive diverticulosis of the acquired type can cause trouble. Some similar cases are reported in the literature. It is one of the conditions to keep in mind in the differential diagnosis of the small-intestinal lesion.

#### **Gallstone Ileus**

Gallstone ileus occurs frequently enough to be considered in any discussion of inflammatory small-bowel disease. The symptoms are those of an acute abdominal episode associated with, or followed by, intestinal obstruction. The following case is one in point:

A 65-year-old spinster was brought to a Rochester, Minnesota hospital on July 10, 1953. She presented with marked abdominal distention, a temperature of 101° F., a toxic appearance, and sweating; and she obviously was acutely ill from some abdominal catastrophe.

Intravenous fluids were given, a double-lumen tube was passed, antibiotics were administered, fluid balance was established, and in due time the acute phase

of her problem subsided. The abdominal distention was relieved, and preliminary roentgenologic surveys of the abdomen showed a shadow in the right lower quadrant suggestive of a gallstone.

Eventually rectal impaction developed and a gallstone measuring 4 by 2 by 2 cm. was removed digitally from the rectum. This event was followed by complete relief of symptoms. The patient was advised to have the gallbladder removed, but she felt so well afterward that she postponed the procedure, and to this day, she still has her gallbladder.

Of course this is not the customary way of removing gallstones, but it does illustrate how a gallbladder may perforate into the intestine, with the result of an intestinal obstruction associated with a severe inflammatory process.

In most instances surgical relief of the intestinal obstruction is required, and the gallstone is discovered at that time.

#### **Tuberculous Enteritis**

Inflammation of the small intestine due to the bacillus of tuberculosis is almost always secondary to pulmonary tuberculosis. Intestinal tuberculosis, which a generation ago was a common disease of the small bowel, is now very rare. Nevertheless, it should be given some consideration in the differential diagnosis of any inflammatory disease of the small bowel, particularly when fairly long stretches of the intestine are involved. The prerequisite to a diagnosis of tuberculous enteritis is demonstration of the primary tuberculosis. Usually the patient with tuberculosis involving the small bowel is very ill, much more so than the typical patient with regional enteritis. The condition usually occurs as a late phase of the pulmonary tuberculosis.

However, it may exist in a hyperplastic form, in which case the individual is not necessarily ill but usually has a palpable abdominal mass that roentgenologic examination reveals to be of an inflammatory nature. Ordinarily treatment of the ulcerative intestinal tuberculosis is supportive, but the hyperplastic form may require resection.

#### **Sarcoidosis**

It has been thought by some that sarcoidosis did not exist in the intestine except as part of a generalized sarcoidosis involving especially the liver. However, there is a significant group of cases with a diagnosis of regional enteritis in which the pathologic appearance resembles that of sarcoidosis. Whether this is a real sarcoidosis or only a variant of regional enteritis remains in the realm of speculation. In any event, treatment is the same as that for the patient with regional enteritis.

#### **Postradiation Enteritis**

After patients have had extensive roentgen therapy to the abdomen for malignant or other diseases—often many years after—a constrictive inflammatory lesion may develop in a segment or segments of the small intestine. This cannot be differentiated either clinically or roentgenologically from regional enteritis, but in such cases the history is of the greatest importance. The physician should inquire specifically as to what amount of roentgen therapy the patient has received. Occasionally such patients bleed massively, or a bowel obstruction develops, and at the time of surgical exploration a scarred segment of bowel is demonstrated. Areas of telangiectasia, so commonly seen after radiation therapy directed to other regions, are readily demonstrated.

#### **Comment**

The subject of inflammatory disease of the small intestine is, of course, much too large to discuss in detail in a single presentation. I have tried to present some diagnostic hints that may help in differentiating these intestinal lesions one from another. I have offered a few practical therapeutic suggestions that I hope will help in the management of some of these conditions. This should not be construed as a complete or even adequate discussion of this very large subject.

#### **REFERENCE**

1. Bagen, J. A.: Peptic Ulcer in General Practice. In Sandweiss, D. J.: Peptic Ulcer: Clinical Aspects, Diagnosis, Management. Philadelphia, W. B. Saunders Company, 1951, pp. 611-619.

Mayo Clinic and Mayo Foundation  
Rochester, Minnesota

# Selection of Pediatric Patients for Cardiac Diagnostic and Surgical Procedures

THE BASIC PHILOSOPHY in regards to the diagnosis and treatment of patients with congenital heart disease has changed so radically in the past twenty years that it is difficult even for older physicians to recall how little clinical interest there was in these patients in the past. Just two decades ago pathologists were the only group who had any great interest in patients with congenital anomalies of the cardiovascular system. At about this time (1936) Maud Abbott's<sup>1</sup> classic atlas of congenital cardiac disease was published. Soon after this, in 1937, Castallanos<sup>2</sup> first introduced angiocardiographic techniques so that anatomical abnormalities could be studied in vivo. During the next ten years, clinical achievements in this field were rapid. Gross<sup>3</sup> reported the successful closure of a patent ductus; Blalock and Taussig<sup>4</sup> introduced the subclavian-pulmonary artery anastomosis for cyanotic patients. In 1947, Taussig's monograph<sup>5</sup> on congenital malformations was published and for the first time there was good data correlating clinical and anatomical findings. The surgical treatment of coarctation of the aorta was introduced in 1945 by Gross<sup>6</sup> and Crafoord<sup>7</sup> approximately simultaneously. In 1949, Cournand and Baldwin<sup>8</sup> at Bellevue

**GLEN G. CAYLER, M.D.**

Since graduating from the University of California School of Medicine in 1950, Glen G. Cayler, M.D., has been certified by the American Board of Pediatrics.

Formerly associated with the Children's Hospital, Boston, Doctor Cayler is now Assistant Professor of Pediatrics at the University of Oklahoma School of Medicine. He is a member of the American Board of Pediatrics and the Oklahoma State Heart Association.

published an account of the clinical application of cardiac catheterization in patients with congenital cardiac deformities. This opened wide the diagnostic door for the clinician.

Great as the strides had been up to this time, however, the field of congenital heart disease was still in its infancy compared to the developments in the last ten years. As recently as 10 years ago, patent ductus arteriosus and coarctation of the aorta were the only congenital cardiac lesions amenable to surgical correction. Patients with the classic Tetralogy of Fallot could be improved but not cured by a shunting operation. There was little or nothing to offer patients with other types of acyanotic and cyanotic con-

This paper is from the Department of Pediatrics and the Children's Memorial Hospital, University of Oklahoma School of Medicine.



genital heart disease even if distress was great. In the past decade the scope of surgery for congenital cardiovascular lesions has greatly increased. Now it is a rare lesion that cannot be approached with at least some hope of possible correction or improvement. Because of the surgical advances, diagnostic techniques have become of major practical importance. In order to select the correct surgical procedure and to predict as accurately as possible the surgical risk, it has become very important to define precisely both the anatomy and the pathophysiology of these defects. We also are learning through diagnostic studies what the patho-physiological course of these defects is and are discovering how inaccurate were some of our previous concepts based only on clinical knowledge.

*No infant or child should be denied indicated cardiac studies because he is too sick or too small.* As a matter of fact, the more severe the lesion and the symptoms, the more urgent is the need for investigation. There are certainly optimal times for study in relation to medical therapy for failure and infection, but it is not reasonable to expect that infants or children with severe cardiac anomalies undergoing diagnostic procedures should be completely compensated and in good condition. Prolonged procrastination in regards to proceeding with diagnostic studies and operation usually leads to disaster.

Limited incomplete studies such as retrograde arteriograms or venous angiograms or so-called "diagnostic" exploratory thoracotomies are not the answer to cardiac diagnostic problems. The basic procedure in almost all cases should be cardiac catheterization with a careful anatomical and physiological evaluation. This study is certainly complimented by angiographic, indicator dilution and other techniques but these other studies are rarely needed in order to establish the basic defect. The importance of physiological evaluation is illustrated in Figure One. The data on the two patients listed was essentially identical except for the pulmonary vascular resistance. They both had an extremely high pulmonary artery pressure; however, one of the patients (L.S.) was an excellent candidate for op-

Figure One

PATENT DUCTUS ARTERIOSUS		
	L.S.	C.W.
Catheter passed through ductus	+	+
Systemic arterial saturation	93%	96%
Aortic pressure (mm. Hg.)	90/50	110/60
Pulmonary artery pressure (mm. Hg.)	90/50	100/60
Flow ratio (pulmonary/systemic)	3/1	1.2/1
Pulmonary vascular resistance (units)	3	15 units

eration while the other (C.W.) was an extremely high-risk patient with considerable doubt as to whether the operation should be performed at all. The difference in these two patients is in the relationship between the pulmonary artery blood flow and pressure. In the first patient (L.S.) the pulmonary flow is approximately three times normal, indicating that in spite of the high pressure no irreversible change had occurred in the pulmonary vessels. In the other patient (C.W.), the pulmonary flow was just slightly greater than the systemic flow and there was a good chance of irreversible pulmonary-vascular changes.

The risk of cardiac diagnostic procedures with present methods of monitoring and better understanding of the patho-physiology of the lesions is extremely small in patients over two or three years of age who are not and have not been in cardiac decompensation. There is also virtually no morbidity to these procedures and the small scar on the arm or leg is usually the most severe residual. The same cannot be said for the risk in small infants or in symptomatic patients with considerable cardiomegaly, present or previous decompensation, syncopal episodes, severe cyanosis, or pulmonary artery hypertension. The risk of a carefully done catheterization in the bad risk group is approximately one per cent. Here, however, we must remember that the risk of the disease is great. It certainly is not unusual for patients in this category to expire a day or two before their appointment in the catheterization laboratory. Figure Two is a summary of the infants and children studied at the Children's Memorial Hospital during the last four months of 1958. All of these patients survived their diagnostic procedure without any significant complications during

Figure Two

CARDIAC CATHETERIZATIONS, CHILDREN'S MEMORIAL HOSPITAL (8/58 - 12/58)				
AGE	NUMBER AND PERCENT OF TOTAL PATIENTS	CONGESTIVE HEART FAILURE	NUMBER OF PATIENTS	DIAGNOSIS
< 1 yr.	7 (22%)	7	5	Atrial Septal Defect
1 - 2 yrs.	5 (16%)	4	6	Ventricular Septal Defect
> 2 yrs.	20	4	3	Patent Ductus Arteriosus
	—	—	6	Pulmonary Stenosis
Total	32	15 (47%)		
Mortality—0			3	Transposition of the Great Vessels
Serious Complications—1 (3%)			9	Other

the procedure except for severe atrio-ventricular block in one patient. The seriousness of the defect in these patients is attested to by the fact that four (or almost fifteen per cent) have expired due to their cardiac disease since their diagnostic studies. In a series of 1,250 infants and children catheterized at the Boston Children's Hospital since 1950,<sup>9</sup> there was only one death directly related to the procedure, a mortality of less than 0.1 per cent.

Certainly not all infants and children with congenital heart disease need to have special cardiac studies. In some their disease is too minimal to warrant studies. In patients with Ebstein's anomaly the clinical diagnosis is usually definite and the risk of catheterization is known to be quite high. Patients are catheterized because of difficulty in establishing an accurate clinical diagnosis, to judge the severity of a lesion, to evaluate effectiveness of surgical procedures, and to ascertain certain facts, both physiological and anatomical, relative to surgical therapy.

Indications for surgical therapy for patients with congenital heart disease must always be weighed in relation to: (1) the risk of treatment versus the risk of the disease; and (2) the gain to be expected from the treatment. One certainly cannot condone very high risk treatment or operation with little chance of possible gain even in patients with severe disease with poor immediate prognosis. The following three examples are presented to illustrate problems in the selection of patients for cardiac operations.

Patient One (Figure Three)—This is a patient with a small patent ductus arter-

iosus. The risk of the disease here is principally the risk of subacute bacterial endarteritis. The exact incidence of endarteritis in such a patient is actually unknown; however, it is estimated to be less than two per cent. The risk of surgical division of a small asymptomatic ductus is very small, probably less than 0.5 per cent when done by a surgeon with experience in a well equipped hospital with good anesthesia. The risk of subacute bacterial endarteritis after surgical division is nil. In essentially all cases the decision is in favor of elective division between ages two to eight. This then is an example of a disease which is of extremely low risk and yet for which operation is almost always recommended because: (1) the risk of operation is very small, (2) the patient's circulation is returned completely to normal by the procedure and (3) the one danger of the disease, subacute bacterial endarteritis, is completely eliminated.

Patient Two (Figure Four)—This illustrates a high risk disease, a relatively low risk surgical procedure but a procedure again giving essentially 100 per cent correction. This is a very large patent ductus arteriosus resulting in congestive heart failure in a small infant. The mortality risk of the disease is approximately 10 to 25 per

Figure Three

SMALL PATENT DUCTUS ARTERIOSUS (Small Left to Right Shunt; Normal Pulmonary Artery Pressure) Risk of Disease — minimal Risk of Surgery — < ½% Gain from Surgery—maximal Decision—Elective surgery between 2 - 8 years.
---



Figure Four

LARGE PATENT DUCTUS ARTERIOSUS	
(In Infancy)	
(Large Left to Right Shunt; Pulmonary Hypertension)	
Risk of Disease - - -	10-25%
Risk of Operation - - -	< 5%
Gain from Operation —	maximal
Decision—Early Surgical Correction	

cent. This figure does not include the increased morbidity of survivors in terms of infections, cardiac failure, limitations, and probable permanent effect on growth. The risk of operation is less than 5 per cent.<sup>10</sup> The expected gains are: (1) a circulation returned to normal, (2) elimination of the excessive cardiovascular burden, (3) relief of decompensation, and (4) correction of growth failure.<sup>11</sup> The decision here is to close the ductus as soon as the infant is in optimal condition from medical therapy.

Patient Three (Figure Five)—The third example is that of another high risk disease; however, in this case there is also a high risk in surgical treatment and the decision should usually be to defer surgery. This is an infant with a large ventricular septal defect, large left to right shunt, and in congestive heart failure. The risk of the disease in terms of mortality is actually not as great as one might think if the baby receives optimal medical therapy. This usually means proper digitization, diuretics, and early treatment of respiratory infections. Almost all these patients will survive infancy when managed in this fash-

Figure Five

LARGE VENTRICULAR SEPTAL DEFECT	
(In Infancy)	
(Large Left to Right Shunt; Pulmonary Hypertension)	
Risk of Disease - - - - -	5-10%
Risk of Operation - - - - -	25-50%
Gain from Operation - usually maximal,	if successful
Decision—Defer operation until age 2-5 years unless	patient cannot be controlled medically.

ion.<sup>12</sup> Present available data indicates that these infants do not develop pulmonary vascular complications. The risk of closure of a ventricular septal defect in these small infants is between 25 to 50 per cent. The decision in this group of patients, therefore, should be against early operation in most cases. Obviously medical therapy is not the final answer to this problem and there are occasional, though usually rare, infants who are improved little or none by medical measures who indeed are candidates for urgent surgical treatment at a very young age.

The above three examples illustrate how the medical and surgical facts and factors must be weighed in each individual case. The optimal time for operation, the surgical risk, and in some cases the method of the surgical approach in other types of congenital heart disease vary so much with the severity of the lesion and the individual response of the patient that it is difficult to present a rigid schedule for the selection of patients for surgical therapy. The fol-

Figure Six

TYPE OF LESION*	SEVERITY OF LESION→	OPTIMAL AGE FOR OPERATION			OPERATIVE MORTALITY		
		Marked	Moderate	Minimal	Marked	Moderate	Minimal
Patent Ductus Arteriosus Ventricular Septal Defect	↓	When Diagnosed	2 - 10 years	2-10 years	< 5%	< 1%	< ½%
		**	3 - 10 years	Operation Not Indicated	25 - 50% (Infants)	5 - 10%	---
Atrial Septal Defect		3 - 10 years	3 - 10 years	"	5%	< 5%	---
Pulmonary Stenosis		When Diagnosed	3 - 10 years	"	5 - 10%	< 5%	---
Aortic Stenosis		"	3 - 10 years	"	10%	5%	---
Coarctation of Aorta		"	8 - 12 years	"	< 10%	< 5%	---
Tetralogy of Fallot		Shunting Procedure For Infants With "Spells"	Total Repair 3 - 6 years	Total Repair 6 - 12 years	10 - 20%	15 - 20%	10 - 15%

\*—Uncomplicated Lesions Only

\*\*—See Text Above



lowing outline (Figure Six) is offered therefore only as a general guide.

### Summary

As surgical techniques for the correction of cardiac anomalies have developed, methods for accurate diagnosis have become of major practical importance. Indications for and the risks of diagnostic and surgical procedures are outlined and discussed. The importance of early accurate diagnosis of young infants and children with severe cardiac disease is stressed. The more severe the symptoms in these babies, the more urgent is the need for investigation.

### BIBLIOGRAPHY

1. Abbott, M.: Atlas of Congenital Cardiac Disease. New York. American Heart Association, 1936.
2. Castellanos, A., Pereiras, R. and Garcia, A.: LaAngiocardia Grafia Radioopaca. Arch. Soc. Estud. Clinic. Habana, 9: 31, 1937.
3. Gross, R. E. and Hubbard, J. P.: Surgical Ligation of a Patent Ductus Arteriosus. Report of First Successful Case. J.A.M.A. 112: 729, 1939.

4. Blalock, A. and Taussig, H. B.: The Surgical Treatment of Malformations of the Heart. J.A.M.A. 128: 189, 1945.
5. Taussig, H. B.: Congenital Malformations of the Heart. New York, Commonwealth Fund, 1947.
6. Gross, R. E. and Hufnagel, C. A.: Coarctation of the Aorta. Experimental Studies Regarding Its Successful Correction. New Eng. J. Med. 233: 287, 1945.
7. Crafoord, C. and Nylin, G.: Congenital Coarctation of Aorta and Its Surgical Treatment. J. Thoracic Surg. 14: 347, 1945.
8. Cournand, A., Baldwin, J. S. and Himmelstein, A.: Cardiac Catheterization in Congenital Heart Disease: A Clinical and Physiological Study in Infants and Children. New York Commonwealth Fund, 1949.
9. Rudolph, A. M. and Cayler, G. G.: Cardiac Catheterization in Infants and Children. Pedi. Clinics of N. America. 5: 907, 1958.
10. Rudolph, A. M., Mayer, F. F., Nadas, A. S. and Gross, R. E.: Patent Ductus Arteriosus: A Clinical and Hemodynamic Study of 23 Patients in the First Year of Life. Pediatrics 22: 892, 1958.
11. Engle, M. E., Holswade, G. R., Goldberg, H. P. and Glenn, F.: Present Problems Pertaining to Patency of the Ductus Arteriosus. Pediatrics 21: 70, 1958.
12. Fyler, D. C., Rudolph, A. M., Wittenburg, M. A. and Nadas, A. S.: Ventricular Septal Defect in Infants and Children: A Correlation of Clinical, Physiological, and Autopsy Data. Circ. 5: 933, 1958.

800 N.E. 13th, Oklahoma City, Oklahoma

ASS, *n.* A public singer with a good voice but no ear. In Virginia City, Nevada, he is called the Washoe Canary, in Dakota, the Senator, and everywhere the Donkey. The animal is widely and variously celebrated in the literature, art and religion of every age and country; no other so engages and fires the human imagination as this noble vertebrate. Indeed, it is doubted by some Ramasilus, lib. II., De Clem, and C. Stantatus, De Tempermaente) if it is not a god; and as such we know it was worshiped by the Etruscans, and, if we may believe Macrobius, by the Cupasians also. Of the only two animals admitted into the Mahometan Paradise along with the souls of men, the ass that carried Balaam is one, the dog of the Seven Sleepers the other. This is no small distinction. From what has been written about the beast might be compiled a library of great splendor and magnitude, rivaling that of the Shakespearean cult, and that which clusters about the Bible. It may be said generally, that all literature is more or less Asinine.

"Hail, holy Ass!" the quiring angels sing;  
"Priest of Unreason, and of Discords King!  
Great co-Creator, let Thy glory shine:  
God made all else; the Mule, the Mule is thine!"  
G. J.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

This is the first of a series of articles prepared for The Journal under the auspices of the Oklahoma Heart Association and its committee on Professional Education, emphasizing the theme of the Association for the current year.

# The Pathogenesis of Congestive Heart Failure

**IT SEEMS UNNECESSARY** to dwell on the individual features and relative merits of the forward versus the backward theories in the pathogenesis of congestive heart failure. There is general agreement that heart failure begins as a result of inadequate cardiac output; this output may be below normal, normal, or several times the normal level, and still be inadequate for the needs of the moment.

The precise reason for failure of the myocardium is unknown. Richard Bing has utilized catheterization of the coronary sinus in studies of myocardial metabolism; he found normal oxygen consumption and energy production in the failing myocardium, and concluded that failure resulted from an inability of the heart muscle to utilize the available energy for effective contraction.<sup>1</sup> It is known also that the failing myocardium is deficient in potassium, and that this ab-

**JOHN J. DONNELL, M.D.**

Since his graduation from the University of Oklahoma School of Medicine in 1943, John J. Donnell, M.D., has been certified by the American Board of Internal Medicine. In addition to his private practice, Doctor Donnell is Assistant Professor of Medicine at the University School of Medicine.

He is an Associate Fellow of the American College of Physicians, a member of the Oklahoma City Clinical Society and the American Heart Association.

normality is corrected when compensation is restored with digitalization. Presumably these changes are related to alterations in cell membrane permeability in the myocardium.

Whatever the cause, with the onset of myocardial failure the ventricle does not

empty completely with systole, the cardiac output diminishes, and arterial filling becomes inadequate. Coincident with inadequate arterial filling retention of sodium and water begins, and this occurs prior to any appreciable elevation of venous pressure;<sup>2</sup> this latter fact is not surprising, since venous pressure represents the state of venous tone as well as volume, and may be normal in spite of significant increase in venous volume. There is considerable evidence also that sodium and water retention may begin before renal blood flow or glomerular filtration rate are demonstrably diminished, and that this retention is incident to increased reabsorption in the distal tubule. Whereas increased venous pressure, decreased renal blood flow and glomerular filtration rate, and glomerulotubular imbalance undoubtedly contribute to the production of edema, some other factor seems to occupy the primary role.

For years it was suspected that a hormonal influence was involved in the mechanics of edema formation in congestive failure. It was known that people with Addison's disease could be caused to develop failure when given excess amounts of desoxycorticosterone, and that this occurred in association with increased sodium and water reabsorption from the distal tubule. Bioassay of the urine of patients with congestive failure did reveal increased amounts of adrenal corticoids. Subsequently in 1955 high aldosterone levels were found in patients with congestive failure and edema, along with reduced output of sodium in the urine.<sup>3, 4</sup>

Aldosterone is produced by the adrenal cortex, although it does not appear to be under pituitary control. It is the most potent of the mineralo-corticoids in its ability to cause retention of salt. The output of aldosterone seems to be regulated by alterations in body sodium. Salt deprivation, excess perspiration and various diuretics increase the output of aldosterone, whereas increased salt intake depresses its production.<sup>5</sup> However, overhydration accomplished by administration of excess water and vasopressin also depresses aldosterone levels, and it thus appears that the output of this hormone is sensitive to changes in blood vol-

ume as well as sodium levels.<sup>6</sup> High aldosterone levels in congestive heart failure appear to be related to the inadequate arterial filling which is incident to decreased cardiac output; attempts to maintain arterial volume result in increased aldosterone production, and sodium and water are retained; since inadequate cardiac output remains, a vicious cycle is initiated and progressive edema appears. It is tempting to attribute the leading role in edema formation to increased aldosterone output, but this is obvious oversimplification of a complicated process. However, this hormone may be the missing link in the pathogenesis of congestive heart failure. The recent development of direct aldosterone antagonists—the spiroactones—should be of aid in the study of this problem.<sup>7</sup>

Evidence has favored the "forward failure theory" to this point, as far as initiation of edema is concerned. However, "backward failure" is productive of most of the signs and symptoms of congestive heart failure. As ventricular output becomes inadequate, the diastolic volume and pressure rise, along with a proportionate elevation of pressure in the adjacent atrium. As compensatory mechanisms related to Starling's law, tachycardia, arteriolar vasoconstriction, etc., fail, a rise in venous volume and pressure appears. In the lungs, pulmonary venous engorgement results in exertional dyspnea. Orthopnea and paroxysmal nocturnal dyspnea appear when pulmonary congestion is intensified by the increased return blood flow which occurs during recumbancy. If the pulmonary venous pressure rises above the osmotic pressure, the danger of acute pulmonary edema is great. In the right ventricle, systolic pressure rise is proportional to the degree of elevation of pulmonary venous pressure, so that pressures of 50-60 mm of mercury may occur with left ventricular failure. If pulmonary arteriolar vasoconstriction appears, right ventricular systolic pressures rise accordingly, and with this increased work, eventual right ventricular hypertrophy is inevitable. With the appearance of pulmonary hypertension the individual may experience some relief from orthopnea and dyspnea; since pulmonary hypertension means increased pulmonary re-



sistance, which in turn means decreased flow, the net result is a decrease in pulmonary venous return and engorgement. Although slightly relieved symptomatically, such a patient is worse off than before, since this represents a more advanced stage of his disease. As right ventricular failure appears, the familiar picture of venous distention, passive congestion of the viscera, and further impairment of renal function is seen.

Deserving of separate consideration is the syndrome of high output circulatory failure. Youmans maintains that it is not strictly accurate to apply the term high output heart failure to this syndrome, since it may develop in the absence of myocardial failure.<sup>8</sup> When cardiac failure occurs, this will contribute considerably to the defect; nevertheless, heart failure was not the primary etiology in the beginning, since at that time cardiac output may have been several times normal. Several different etiologies may be responsible for the appearance of high output circulatory failure. Probably the best examples are the arteriovenous fistulae and some cases of Paget's disease of bone; these conditions are usually unassociated with any defect which might contribute to the failure. Beriberi, severe anemia, patent ductus arteriosus, some types of pulmonary disease, and hyperthyroidism are other known causes, but in each of these conditions associated aggravating conditions may exist which contribute to failure. The primary abnormality in this syndrome appears to be the lowered peripheral resistance, as a consequence of which there is a low diastolic, high systolic, but an approximately normal mean blood pressure. The arteriovenous oxygen difference is decreased. It has been shown that renal blood flow and glomerular filtration rate are diminished, the mechanism for which supposedly is a shunting of blood away from the kidney; this latter phenomenon is explained on the basis of the concept that the renal circulation is unable to lower its arteriolar resistance, and blood is thus shunted to other areas of lower peripheral resistance. Sodium and water are then retained as a result of proportionately increased tubular reabsorption. To date there are no reported studies on aldosterone output under such circumstances.

## Summary

1. The precise metabolic myocardial defect responsible for heart failure is unknown, but the primary result is an inadequate cardiac output.

2. Sodium and water retention begin when cardiac output becomes inadequate, prior to significant rise in venous pressure or lowering of renal blood flow.

3. Increased aldosterone levels appear to be responsible for this sodium and water retention, attempting to correct the impaired arterial filling which is incident to inadequate cardiac output.

4. Since the inadequate cardiac output continues, the vicious cycle of edema formation is perpetuated. Subsequent elevated venous pressure and decreased renal blood flow contribute to the edema formation, but do not play a primary role.

5. "Forward failure" thus is responsible for initiating salt and water retention, whereas "backward failure" is predominantly responsible for the manifestations of congestive heart failure.

6. High output circulatory failure with edema may occur without associated heart failure, in conditions such as arteriovenous fistulae, Paget's disease of bone, etc.

## REFERENCES

1. Blair, J. M., Schafer, H., Siegel, U. L., and Bing, R. J.: Myocardial Metabolism in Congestive Failure, *Am. J. Med.* 20: 820, 1956.
2. Warren, J. V., and Stead, E. A. Jr.: Fluid Dynamics in Chronic Congestive Heart Failure: An Interpretation of the Mechanisms Producing Edema, Increased Plasma Volume and Elevated Venous Pressure in Certain Patients with Prolonged Congestive Failure, *Arch. Int. Med.* 73: 138, 1944.
3. Luetscher, J. A., Jr.; Neher, R., and Wettstein, A.: Isolation of Crystalline Aldosterone from the Urine of a Nephrotic Patient, *Experientia* 10: 456, 1954.
4. Luetscher, J. A., Jr.; Neher, R., and Wettstein, A.: Isolation of Crystalline Aldosterone from the Urine of Patients with Congestive Heart Failure, *Experientia* 12: 22, 1956.
5. Luetscher, J. A., Jr.: Studies of Aldosterone in Relation to Water and Electrolyte Balance in Man, in *Recent Progress in Hormone Research: Proceedings of the Laurentian Hormone Conference 1955*, edited by G. Pincus, New York, Academic Press, Inc., 1956.
6. Bartter, F. C.: The Role of Aldosterone in Normal Homeostasis and in Certain Disease States, *Metabolism* 5: 369, 1956.
7. Liddle, G. W.: Aldosterone Antagonists, *Arch. Int. Med.* 102: 990, 1958.
8. Youmans, W. B.: High Output Circulatory Failure as a Distinct Syndrome. *Modern Concepts of Cardiovascular Disease* 26: 389, 1957.

1214 N. Hudson, Oklahoma City, Oklahoma



## EDITORIAL

### Tuberculosis and the Family Physician

The family physician traditionally has played a larger role in the diagnosis of tuberculosis than in its treatment. As emphasized in the review in this journal,<sup>1</sup> tuberculosis has become a much more manageable disease and the need for long-term institutional care has been diminished. The treatment should preferably begin in the hospital; however, the family physician can and should take a larger part in the treatment and clinical management of these patients than he has in the past.

The problem may be illustrated by a few figures. In 1950 in the United States, the average patient remained in the hospital 21 months. By 1956 the duration of hospitalization had decreased to eight months, but the post-hospital drug treatment period had increased to 24 months.<sup>2</sup> In the Oklahoma State Tuberculous Hospitals, the average length of stay in 1957 was seven months and 21 days.<sup>3</sup> The Oklahoma City Veterans Hospital, a pioneer in the definitive treatment of tuberculosis in a general hospital setting, has successfully reduced the length of stay of patients with tuberculosis to four months. The number of active cases not hospitalized in 1957 in Oklahoma was 1188, or slightly more than half the total. There were over a thousand *new* cases in this state in 1957.<sup>3, 4</sup>

As the trend for shorter hospitalization, combined with longer periods of chemother-

apy has continued, the role of the family physician has altered. Today he is responsible for the majority of the treatment period.

Tuberculosis still is not an easy disease to treat nor is the treatment routine. It is not enough to identify the location of tuberculosis lesions, but we must also know whether these lesions consist predominantly of inflammatory elements or whether necrosis is advanced and cavitation is present and to what extent reparative changes already have taken place.

It is evident that much of the responsibility for its therapeutic program must increasingly fall on the family physician.<sup>5</sup> What tools will he need beyond those he can provide in his office? He will need to have access to *all* the tools which now are provided in tuberculous hospitals, e.g. planigraphy and laboratory facilities for drug resistance studies. He will need to have a cooperative liaison with inpatient hospital services, and lastly he will need to have the most recent information on the treatment of tuberculosis.

#### REFERENCES

1. Burke, Richard M.: Present-day treatment of tuberculosis. *Journal of Oklahoma State Medical Association*.
2. Parke, Davis Products: Patterns of disease.
3. Oklahoma Tuberculosis Association Program of Work 1959-60.
4. Mathews, Grady F., and Burke, Richard M.: Tuberculosis in Oklahoma (*Oklahoma State Health Department Bulletin*).
5. Muschennheim, Carl: Tuberculosis and the family physician. Abstracts on Tuberculosis and Other Respiratory Diseases, issued by National Tuberculosis Association, Vol. 31, No. 6, June 1959.

J.F.H.



# Present-Day Treatment of Tuberculosis

THE DEVELOPMENT of antituberculosis drugs has revolutionized the treatment of tuberculosis. This has occurred in a few short years, during which time older measures have been discarded or modified as an increasing dependence is placed on chemotherapy.

Treatment in the past consisted of rest, diet, and collapse measures. Antimicrobial agents have brought a more complex and demanding therapy for the physician to administer. Treatment is also more complex because the patients are older. Once tuberculosis was a disease of young adults. Now it is predominantly a problem among older people. The disease can develop from infection acquired decades earlier. Older people are still suffering from the effects of heavy exposure to infection in their youth, while the young adult of today has not been exposed to the degree that his elders were.

In this paper we shall outline the use of drugs and discuss briefly the other therapeutic measures employed. The treatment of tuberculosis, once the domain of the specialist, is now more within the province of the general practitioner.<sup>1</sup> These comments may be of particular help to the generalist who undertakes to guide the patient along the long road to recovery.

Streptomycin became generally available in 1947 and para-aminosalicylic acid (PAS) two years later. The effective employment of these drugs began about 1950, with the observation that the intermittent use of streptomycin with daily PAS greatly delayed the emergence and dominance of resistant tubercle bacilli.<sup>2</sup> With dual therapy reducing the problem of drug resistance, it was soon agreed that all active tuberculosis should be treated with drugs, regardless of the extent or location of the disease. In 1951 came isonicotinic acid hydrazide (isoniazid).<sup>3</sup> This drug has proven in many ways to be superior to streptomycin and other drugs that have since been developed. Ison-

## RICHARD M. BURKE, M.D.

Richard M. Burke, M.D., graduated from the University of Minnesota Medical School in 1930. He is a Fellow of the American College of Physicians and the American College of Chest Physicians.

In addition to his private practice, Doctor Burke is Associate Professor of Medicine at the University of Oklahoma School of Medicine.

iazid appears to interfere with the enzyme metabolism necessary for the growth of tubercle bacilli, thus enabling body defenses to gain the ascendancy over the organism.<sup>4</sup> Various antibiotics have been shown to be most effective against susceptible microbes when they are actively multiplying. This is true of the antituberculosis drugs which appear to act only at the time of cell division.<sup>5</sup>

## Treatment of Early Infections

As the value of the drugs in clinical tuberculosis became established, the next step was that of exploring their effects in early infection with the tubercle bacillus. At present, drugs are recommended for infants under three years having only a positive tuberculin test. Studies done thus far indicate that it sharply reduces potential progression and dissemination from the primary focus.<sup>6</sup> In children above three having only a positive tuberculin reaction, drugs are ordinarily not employed. Very little progressive tuberculosis is encountered in childhood.

Another limited use for antimicrobial drugs is in treating the person who converts his tuberculin reaction from negative to positive within a short known interval (approximately six months).

## Experimental Studies

There are still broader potential uses for chemoprophylaxis under study. For example, in Oklahoma County some members of households with a known case of tuberculosis are being given isoniazid for a year. This is part of a nationwide study. A state project



involves persons with silicosis who are given isoniazid in an effort to determine how much protection it will afford them in preventing tuberculosis.

### **BCG Vaccine**

At this point, it seems not amiss to mention BCG vaccine. It has been in use since 1921 but still its merits are debated.<sup>7</sup> BCG confers some transitory immunity. It has a limited place when the immediate danger of infection is high; for example, when an active case of tuberculosis remains in the home. In our opinion, the limited amount of protection provided does not warrant its widespread use in America. The advisory committee on BCG of the Public Health Service recommends that its use be restricted to high risk situations.<sup>8</sup> We have used BCG for a number of years among children in a poor environment where there is a known active case in the home. During the past two years, our interest in BCG has been diverted by isoniazid chemoprophylaxis, and as a result we are using less vaccine. The decision as to using BCG comes up most often when the exposure risk is high and weakness in other methods of control are evident.

### **Hospital Care**

Hospital care should supplement drug therapy in the presence of active tuberculosis. This provides a sheltered environment where all treatment facilities are readily available. Prolonged strict rest is no longer employed, but the hospital has a major role to play in isolating, establishing the pattern of treatment, performing the necessary surgery, and beginning the rehabilitation of the patient.<sup>9</sup>

### **Major Drug Programs**

There are a few basic drug programs which are initially employed in treatment. The cooperative studies started and continued by the VA and Armed Forces group thirteen years ago have been of great help in establishing the merit of these programs.<sup>10</sup>

The three common drug combinations are: (1) isoniazid (INH) plus para-aminosalicylic acid (PAS); (2) isoniazid plus streptomycin (SM); (3) streptomycin plus para-aminosalicylic acid. The dosage for INH is

5-15 mg/kg. More will be mentioned later regarding dosage of this drug. The average adult daily dosage for PAS is 12-16 grams. The salts, sodium, potassium, and calcium are a little less irritating to the stomach than the acid preparation. They require a slightly larger dose (0.5 gm. of acid is equal to 0.365 gm. of sodium para-aminosalicylate). Toxic reactions to PAS include fever, skin rash, and gastrointestinal intolerance. To cope with gastrointestinal distress, it is wise to sharply reduce dosage for a few days and slowly increase up to tolerance. A trial of some of the many special preparations of PAS claiming lessened gastrointestinal irritation may be rewarding.

Streptomycin is usually given one gram intramuscularly twice a week. Ordinarily this has proven to be adequate dosage, but in recent extensive disease it may be used daily for about three months before starting intermittent administration. The results are slightly better with daily administration. Dihydrostreptomycin is not employed for long-term therapy because of its ototoxicity. Streptomycin is more prone to cause vestibular damage, but this seldom occurs with conventional dosage. Streptoduocin, 0.5 gm. each of streptomycin and dihydrostreptomycin, was introduced with the purpose of lessening neurotoxicity. Its use has not found much favor as apparently it causes about as much damage as dihydrostreptomycin alone. With the intermittent use of streptomycin, eighth nerve impairment is seldom encountered.

It is generally agreed that two drugs should be used to combat the emergence of drug resistant bacilli and ordinarily adding a third drug has little long-term advantage over two. There should be no concern about using the two best drugs simultaneously (INH-SM). All initial treatment cases should include INH with treatment continued for a year, or for at least six months after the disease has been classified as inactive. The average length of treatment in those with advanced disease is about two years. In minimal or non-cavitary disease exhibiting a favorable trend, there is a minority of physicians who use only INH.<sup>11</sup> We do not favor this but stop the second drug after six months and continue with

INH alone in some instances. The best initial combination for cavitary disease appears to be INH-PAS rather than INH-SM or SM-PAS. After 6-8 months of treatment, if the cavities have not closed or exhibit a very definite favorable trend, pulmonary resection is best employed. To continue longer invites drug resistance, even if the sputum is negative.

### Other Drugs

The second line of drugs include viomycin, pyrazinamide, and cycloserine. Viomycin is a member of the streptomyces family. The average adult dose is 2 gms. twice a week intramuscularly. Its bacteriostatic activity ranges between streptomycin and PAS. Renal damage is occasionally encountered, but it is rare with conventional dosage. Viomycin is most commonly used as a substitute for streptomycin when resistance or intolerance to this drug is encountered.

Pyrazinamide (pyrazinoic acid amide) is an oral drug of particular value for short-term use (3-6 months) combined with isoniazid. This drug's potential hepatotoxicity merits caution in its use. Some investigators report that measurements of serum enzyme levels forewarn of hepatic damage earlier, although with less specificity than the liver function tests commonly used.<sup>12</sup> It occasionally is employed preceding and after operation in a patient with drug-resistant organisms. The average dosage ranges from 1.5 to 3 gms. daily. Its use is best confined to hospital patients where appropriate supervision can readily be maintained.

Cycloserine, another derivative of the streptomyces family, was introduced in 1954. When used alone, it proved to be rather weak, but in combination with INH it has been fairly effective. It can be neurotoxic. This is manifested by emotional and neuropsychiatric upsets. These symptoms, however, are infrequent with the present daily oral dosage of 500 mg. Its use is not contraindicated in psychiatric patients. It is most frequently used along with INH in patients with drug resistance problems.

Streptovaricin is derived from streptomyces varibilis. Its in vitro activity against the tubercle bacillus was encouraging but clinical trial has not been very promising.

Still another derivative of streptomyces is kanamycin, marketed at Kantrex. The Japanese reported favorably on its use. Thus far it appears to be rather toxic (auditory and renal). Trials (1.0 gm. three times a week with PAS) are in progress, but at the moment its use is not advised.

The oxytetracycline drugs have a slight tuberculostatic effect and can be used in combinations with one of the three top tuberculosis drugs when drug resistance problems are encountered. The dosage is 1-2 gms. daily.

We do not favor the combination of two drugs in one preparation. Several products are on the market combining INH with streptomycin and PAS. Proper effective dosage seldom can be regulated when such preparations are used.

In treating uncomplicated primary tuberculosis (positive tuberculin test only) for infants up to three years, it appears that one drug is satisfactory. INH, in dosage of 10 mg/kg. daily for a period of one year, may be used. If PAS is also employed, the dosage is 200 mg/kg. daily.

For recent (within six months) tuberculin converters of all ages, INH 5 mg/kg. daily for 9-12 months is recommended.

### Bacterial Sensitivity Studies

Bacterial sensitivity studies are essential in the management of tuberculosis. Soon after streptomycin was introduced the problem of drug resistance was quickly brought into prominence. When used alone, strains of tubercle bacilli resistant to streptomycin quickly developed. This problem was greatly reduced with the introduction of PAS. Its concomitant use with streptomycin delayed the development and the dominance of resistant organisms. With isoniazid, drug resistance occurs but there is a difference. INH resistant tubercle bacilli, unlike streptomycin resistant organisms (which remain virulent), may lose their virulence for the guinea pig. This loss of virulence has been connected with diminished catalase activity by the tubercle bacillus; that is, they become deficient in their ability to synthesize the enzyme catalase.



Normally, isoniazid sensitive strains, whether pathogenic or nonpathogenic, are catalase positive. Isoniazid sensitive strains which are still catalase positive will usually cause fatal tuberculosis in the guinea pig. On the other hand, the catalase negative organism will not produce lethal disease in the guinea pig or rhesus monkey. The evidence further indicates that catalase deficient strains of tubercle bacilli resistant to INH are attenuated for most human beings. It is thought that initial inadequate dosage of INH may favor the persistence of catalase positive strains.

#### Metabolism of INH

The metabolism of isoniazid to one or more biologically inactive derivatives has been demonstrated.<sup>13</sup> Significant variation from person to person has been observed. A genetic factor apparently accounts for this difference in INH inactivation. Because of this variation, a few hospitals are presently gauging the dosage of INH after biological assay of the patient's serum and giving the rapid metabolizers higher doses of INH. The correlation of these individual variations in INH metabolism with the patient's response to treatment has not yet been fully demonstrated. Another factor in heightening the level of free serum concentration of INH is the concomitant use of PAS. It is theorized that PAS competes for the acetylation mechanism which serves to inactivate INH as well as PAS and therefore indirectly acts to raise the level of free INH in the serum.

Regardless of the individual variations in isoniazid metabolism, there has been a trend to use higher doses of INH; i.e., more than the customary 5 mg/kg. Berte<sup>14</sup> reports superior results using 10 to 16 mg/kg. of INH along with PAS, 12 gms. daily. He further reports 1.8 per cent toxic reactions to INH and 8.9 per cent manifested toxicity to PAS.

The use of high doses of isoniazid interferes with the formation of pyridoxine (B-6). To combat this potential deficiency, it is customary to give pyridoxine (about 100 mg.) when using more than 400 mg. of isoniazid daily. This supposedly prevents or lessens the frequency of peripheral neuropathy, said to occur in about 2 per cent of patients. McCune and associates have shown

that large doses of pyridoxine antagonizes the antituberculosis effect of isoniazid in mice.<sup>15</sup> At present there is speculation that the neuritis preventing effect of pyridoxine administration is simply a reduction of free isoniazid available.

#### Adrenocortical Steroid Therapy

The steroids, as adjunctive therapy in tuberculosis, are being employed with increasing frequency. This may sound a bit surprising as physicians have been made aware of the hazards of giving these hormones to persons with latent or inactive disease.<sup>16</sup> This is a real danger and all persons requiring prolonged cortico-steroid therapy should have periodic chest films if the tuberculin test is positive. Their use in known disease presents a different situation. It is agreed by many clinicians that tuberculous meningitis is benefited by steroids, particularly if there is spinal block. Also, there are a number of patients with widespread disease, who fail to respond to standard therapy, who appear to be helped by corticosteroids.

The mode of action of the steroids is not fully understood. It is apparently more than simply an anti-inflammatory effect. Weinstein and Koler report a control study where the steroids were employed in all stages of tuberculosis.<sup>17</sup> It was their impression that the hospital stay of such patients was shortened by virtue of accelerated sputum conversion and cavity closure. They used prednisolone for 68 days, averaging about 12 mgs. daily. More controlled studies are needed to clarify the indications for the use of these potent substances, but it appears that steroids can be safely administered to select tuberculous patients. *When used, the patient must be covered by antituberculosis drugs to which the organisms are susceptible.*

#### Surgery

The indications for surgery in pulmonary tuberculosis are now fairly well defined. This has been the result of a better appreciation of what antimicrobial agents can and cannot do.

Resection is the procedure used in most situations. As to type of resection, there has recently been a shift toward lobectomies and away from segmental and subsegmental resection. Cavitory lesions that fail to close



after a trial of chemotherapy should be resected whenever possible. Small residual closed necrotic foci (usually under 2 cm.) are now seldom removed as they frequently were a few years ago. The present attitude is that long-term drug therapy provides sufficient protection against future reactivation of small residual lesions.

The removal of cavitary foci carries with it slight risk while providing assurance for future stability not otherwise possible. The present operative mortality rate for lobectomy is about 2 per cent, while the morbidity rate is about 10 per cent.<sup>18</sup> Artificial pneumothorax and pneumoperitoneum have been abandoned.<sup>19</sup> A primary thoracoplasty or plombage thoracoplasty is occasionally used instead of resection in those with loss of sensitivity of the organisms to the tuberculosis drugs or because of marked reduction in pulmonary reserve.

The problem of recognizing tuberculous cavities was seemingly solved by the now wide-spread use of chest planigrams. This x-ray technique is essential in the management of tuberculosis; however, intensive chemotherapy has brought a new problem. This is the bullous and cyst-like cavities that follow healing. These blebs may develop either abutting the site of the former cavity or close to it. Also, the original cavity may end as a thin walled bleb-like structure. These post inflammatory changes were noticed before the chemotherapy era, but now are seen more frequently especially since the introduction of isoniazid.

The patient who converts his sputum and has a cavity remaining presents a difficult problem in therapy. A few years ago it was generally thought that such patients should have a resection; now we are not so dogmatic. Some of these cavities will show evidence of open healing on pathologic examination or will turn out to be simply blebs. More often, however, there are residual foci of active disease found that pose a threat for the future and are best removed.

#### **Non-pulmonary Tuberculosis**

In general, the drug therapy programs are the same for non-pulmonary as for pulmonary tuberculosis. The management of the former is often easier because there is no problem of cavitation with its hazards

of persistent positive sputum and drug resistance.

Glandular tuberculosis is probably the most common extrapulmonary lesion now seen. It is well to stress the use of isoniazid plus a second drug. Further, treatment should be continued for at least a year, regardless of how rapid the glandular swelling subsides. Miliary and meningeal tuberculosis respond well in persons over two years of age with at least 70 per cent recovery. Below two years, the response, regardless of the regimen, is poor. A satisfactory drug program is INH 10 mg/kg. daily plus SM intramuscularly daily with or without PAS. Intrathecal streptomycin is not used. An increasing number of physicians are adding the steroids or ACTH. Genito-urinary tuberculosis responds well to INH-PAS given for one year.<sup>21</sup>

#### **Discussion**

The treatment of tuberculosis centers around long-term, continuous chemotherapy. The three front rank drugs continue to be isoniazid, streptomycin, and para-aminosalicylic acid with isoniazid the most valuable. Among the second rank drugs are viomycin, cycloserine, pyrazinamide, and oxytetracyclines. A number of new and promising drugs are under clinical trial. The adjuvant role of the cortico-steroids appears promising, but their place in treatment is not yet secure.

Most patients undergoing treatment for the first time with early disease will do well on any of several drug combinations. Differences occur only in patients with advanced disease with cavitation. In these patients, the combination of INH and PAS appears to have a slight edge in speed of cavity closure and sputum conversion. Further initial intensive therapy, employing all three drugs including daily streptomycin, probably has a place in the treatment of some patients with extensive disease during the first three months. It is to be noted, however, that triple drug therapy produces more toxicity and does not reduce the problem of drug resistance. In about 10 per cent of such cases, streptomycin toxicity results in its discontinuance.

If cavities are not closed by eight months of chemotherapy, then continued expectant

treatment with the same drugs is unwise and surgical treatment should be employed. If for some reason, surgical treatment cannot be carried out, drug therapy is best continued indefinitely.

Hospital care is superior to home management for the majority of patients. The biggest difficulty under outpatient or home management is the erratic drug therapy that often occurs. A common situation is the stopping of drugs by the patient after three or four months. A patient may experience some intolerance, real or imagined, to a drug. He is feeling fine so he stops one or both drugs. PAS is the drug most frequently discontinued or its dosage reduced to an inadequate level. Ross and associates did a follow-up study of patients admitted to Edinburgh Hospitals in 1953.<sup>22</sup> No relapses occurred in patients with drug sensitive organisms that received 15 months of chemotherapy. Those receiving short interrupted courses had a high relapse rate. A problem common among outpatients is the delay or failure to have needed surgery. Another error has been the long continued use of streptomycin in the presence of cavitation where drug resistance is almost a certainty.

Sir William Osler said, "It is just as important to know what is in a man's head as what is in his chest if you want to predict the outcome of his pulmonary tuberculosis." This is still true. The greatest treatment problem is getting the patient to accept and follow your recommendations. This overshadows the matter of what specific drug program to use or what surgical measure is best. Tolerance and understanding on the part of the physician are necessary to cope with the emotional adjustment many patients find hard to make.<sup>23</sup>

### Summary

The basis of the treatment of tuberculosis is the long-term use of anti-tuberculosis drugs. A sheltered environment best provided in a hospital supplements drug therapy. Here the patient should remain at least until a favorable trend has been established. This means a negative sputum and cavity closure, with or without the aid of surgery.

The physician using antituberculosis drugs has a responsibility that must not be under-

taken casually. With a cooperative patient and their proper use, complete recovery can be assured; while with their haphazard use, the outcome can readily be one of relapses with persistent cavitary disease, drug resistant organisms, and chronic invalidism.

### BIBLIOGRAPHY

1. McDermott, Walsh: The enlarging role of the general practitioner in tuberculosis therapy. *J. Chronic Dis.* 2, 2: 234-238, 1955.
2. Tempel, Carl W., Hughes, Frederic J., Mardis, Richard E., and Towbin, Milton N.: Combined intermittent regimens employing streptomycin and para-aminosalicylic acid in the treatment of pulmonary tuberculosis. *Tr. Nat. Tuberc. A.* 46: 27-43, 1950.
3. McDermott, Walsh: Isonicotinic acid derivatives in tuberculosis treatment: history of the development of the drugs. *Tr. Nat. Tuberc. A.* 48: 420-424, 1952.
4. Maher, John R., et al. Studies on the mode of action of isoniazid. *Am. Rev. Tuberc.* 77: 501-505, 1958.
5. Hobby, Gladys L. and Tulita, Lenert: The in vitro action of the antituberculosis agents against multiplying and non-multiplying cells. *Am. Rev. Tuberc.* 76: 1031-1048, 1957.
6. Ferebee, Shirley H., Mount, Frank W., Anastasiades, A. A.: Prophylactic effects of isoniazid on primary tuberculosis in children. *Am. Rev. Tuberc.* 76: 942-963, 1957.
7. Palmer, Carrol E., Shaw, Lawrence W., and Comstock, George W.: Community trials of BCG vaccination. *Am. Rev. Tuberc.* 77: 877-907, 1958.
8. U. S. Public Health Service Ad Hoc Advisory Committee on BCG. Report of the ad hoc advisory committee on BCG to the Surgeon General of the United States Public Health Service. *Am. Rev. Tuberc.* 76: 728-731, 1957.
9. Wier, J. A., Taylor, R. L., Weiser, O. L., and Fraser, R. S.: An evaluation of ambulatory vs. non-ambulatory treatment of hospitalized patients with pulmonary tuberculosis. *Tr. 15th VA-Armed Forces Conf. on Chemotherapy of Tuberculosis*, 1957, p. 38.
10. Rothstein, Emil: The 17th VA-Armed Forces conf. on chemotherapy of tuberculosis. *New England J. Med.* 258: 1199-1204, 1958.
11. Muschenheim, Carl, Jordahl, Clarence W., Des Prez, Roger M., Deuschle, Kurt, and McDermott, Walsh: Further observations on single drug (isoniazid) therapy in tuberculosis: Significance with respect to selection of companion drugs in initial and subsequent phases of treatment. *Tr. 16th VA-Armed Forces Conf. on the Chemotherapy of Tuberculosis*, 1958, p. 117.
12. Morrissey, John F. and Ruben, Hugh C.: The detection of hepatic toxicity due to pyrazinamide by means of the determination of serum enzymes. *Tr. 17th VA-Armed Forces Conf. on Chemotherapy of Tuberculosis*, 1958, p. 59.
13. Mitchell, Roger S., Riemensnyder, Dick K., Harsch, John R., and Bell, J. Carroll. New information on the clinical implications of individual variations in the metabolic handling of antituberculosis drugs, particularly isoniazid. *Tr. 17th Conf. on Chemotherapy of Tuberculosis*, 1958, pp. 77-85.
14. Berte, Stephen J., et al.: An evaluation of chemotherapy in pulmonary tuberculosis. Part I and Part II. *Am. Rev. Tuberc.* 78: 773-784, 1958.
15. McCune, Robert, Deuschle, Kurt, and McDermott, Walsh: The delayed appearance of isoniazid antagonism by pyridoxine in vivo. *Am. Rev. Tuberc.* 76: 110-115, 1957.
16. Shubin, Harry, Lambert, Robert, and Heiken, Charles A.: The place of steroids in pulmonary disease. *Dis. Chest* 24: 138-149, 1958.
17. Weinstein, Haskell J., and Koler, John J.: Adrenocorticosteroids in the treatment of tuberculosis. *New England J. Med.* 260: 412-417, 1959.
18. Steele, John D.: The indications for surgery in pulmonary tuberculosis. *Ann. Int. Med.* 50: 51-61, 1959.
19. Roque, F. T.: Temporary collapse in the treatment of pulmonary tuberculosis. *Dis. Chest* 34: 404-412, 1958.
20. Weiner, A. A. and Boldowsky, V.: The formation of bullous cavities following antimicrobial therapy for pulmonary tuberculosis. *Sea View Hosp. Bull.* 16: 170-180, 1957.
21. Lattimer, John K., Wechsler, Herman, Almodovar, Alfred, and Boyes, Truman: Chemotherapy of kidney tuberculosis. *Tr. 16th VA-Armed Forces Conf. on Chemotherapy of Tuberculosis*, 1958, p. 154.
22. Ross, J. D., Horne, N. W., Grant, W. B., and Croffon: Hospital treatment of pulmonary tuberculosis: Follow-up study of patients admitted to Edinburgh Hospitals in 1953. *Brit. M. J.* 1: 237-242, 1958.
23. Hammarsten, James F. and Wolf, Stewart. The role of the emotions in respiratory disease. *M. Clin. North America* 43: 113-126, 1958.

430 N.W. 12th, Oklahoma City, Oklahoma



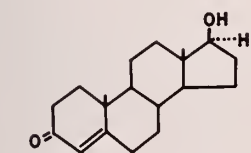
# Basic Science Brief:

## The Androgens

**BIOLOGICALLY** active androgenic extracts were first prepared from bull testes by Doctor F. C. Koch (1929). An androgenic material was extracted from human male urine by Butenandt (1931) who, within the next year, determined its structure and assigned the name "androsterone." This compound was synthesized from cholesterol by Ruzicka in 1934. Testosterone was crystallized from extracts of bull testes by Laqueur in 1935 and was synthesized by Ruzicka during the same year.

Testosterone, the predominant male sex hormone, is produced by the Leydig cells of the testes upon stimulation by the interstitial cell stimulating hormone (ICSH) of the anterior pituitary gland. Androgenic compounds are also produced by the adrenal cortex and under some circumstances by the hilar cells of the ovary.

The androgens are derivatives of the cyclopentanophenanthrene (steroid) nucleus. They are generally poorly soluble in water but more soluble in oils and other organic solvents.

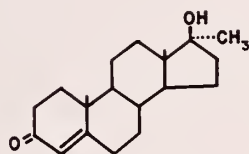


Testosterone, the androgen normally secreted by the testis, is produced synthetically from cholesterol. Intensi-

fication and prolongation of testosterone action can be achieved with various esters including the propionate, cyclopentyl propionate, (Depo Testosterone®), phenyl acetate, isobutyrate and enanthate (Delat-

### R. W. PAYNE, M.D.

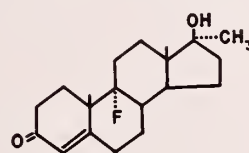
Richard W. Payne, M.D., graduated from the University of Oklahoma School of Medicine in 1943. He is now Associate Professor of Pharmacology and Instructor in Medicine at the same school.



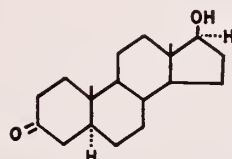
estryl®).

Methyltestosterone is an orally effective derivative of testosterone.

Greatly enhanced androgenic effect by the oral route is exhibited by Fluoxymesterone (1956) Halotestin®) (Ultandren®)

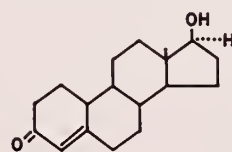


In the search for compounds which might exert more anabolic than androgenic effect several modifications of the androgen nucleus have been introduced:



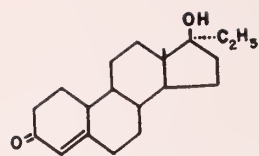
most potent androgen of the androstane series.

Methylandrostendiol exhibits about 1.5 the androgenic potency of testosterone. Stanolone (Neodrol®) is the



19-nortestosterone, a relatively weak androgen, appears to exert a favorable anabolic/androgenic ratio. The phenyl-propionate ester (Duralbolin®) exerts a prolonged effect.



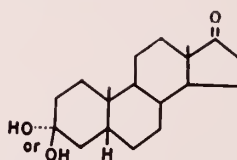


Norethandrolone (Nilevar®) (1956) is an orally effective weak androgen with somewhat enhanced anabolic and progestational effects.

#### MODE OF ADMINISTRATION:

Crystalline testosterone may be administered parenterally as an aqueous suspension, implanted as compressed tablets (pellets), or as buccal tablets for transmucosal absorption. The esters of testosterone are administered as oily solutions or aqueous suspensions. Methyl testosterone is effective when administered by either the oral or buccal routes. Fluoxymesterone and Nilevar® are fully effective by the oral route.

compound also is derived from androgens produced by the adrenal cortex. Its 3 $\beta$  isomer (isoandrosterone) is only weakly androgenic.



The etiocholanolones (3 $\alpha$  and 3 $\beta$ ) are biologically inactive.

Approximately 2/3 of excreted 17-ketosteroids are of adrenal origin. These include androstane and androstene diones and dihydroisoandrosterone (DHA).

Esterification of testosterone serves to slow its absorption and degradation in the body.

Methyl testosterone is not excreted as a 17-ketosteroid but is excreted to some extent in its original form.

#### COMPARISON OF ANDROGENIC STEROIDS

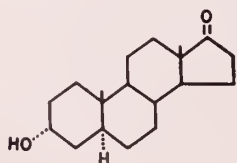
Androgen	Route of Administration	Dose	Relative Effectiveness	Duration of Action	Vehicle
Testosterone Propionate	I.M.	50 mg.	100*	3-4 days	Oil
Testosterone Propionate	Buccal	50 mg.	50	1 day	Propylene Glycol
Crys. Testosterone	S.C. Implantation	600 mg.	5	6-8 mo.	Compressed Tablet
Crys. Testosterone	Buccal	50 mg.	50	1 day	Compressed Tablet
Testosterone Cyclopentylpropionate	I.M.	100 mg.	25	2 wks.	Oil
Testosterone Enanthate	I.M.	100 mg.	25	2 wks.	Oil
Fluoxymesterone	Oral	10 mg.	100	1 day	Compressed Tablet
Methyltestosterone	Buccal	50 mg.	100	1 day	Propylene Glycol
Methyltestosterone	Oral	50 mg.	50	1 day	Compressed Tablet
Nilevar®**	Oral	50 mg.	8	1 day	Compressed Tablet

\*—Arbitrary figures comparing androgenic potency to testosterone propionate by injection

\*\*—Anabolic effect equal to testosterone propionate

#### INTERMEDIARY METABOLISM:

Testosterone and its esters are destroyed by the body largely by the liver to the extent that only about 40% of the administered dose can be accounted for in the urine on the basis of readily identifiable metabolites. These excretion products, known as neutral 17-ketosteroids, are largely excreted as conjugated products. These excretion forms include:



Androsterone, the most abundant metabolite, exhibits about 1/10 the activity of testosterone. This

Transmucosal absorption of testosterone and methyl testosterone leads to enhanced effect over the oral route largely due to delayed passage through the liver. Estrogenic excretion products of 19-nortestosterone have been identified.

The relative contribution of the adrenal cortex and the testis to neutral 17-ketosteroid excretion is outlined by the following circumstances:

	Normal	Castrate	Addisons Disease
Adult Male	14*	9	5
Adult Female	9	9	0

\*Urinary excretion 17-KS. (mg./24 hrs.)

## BIOLOGIC EFFECTS:

### *Anabolic Properties:*

Compounds of the androgenic series stimulate cell growth and aid in general protein anabolism. They cause retention of nitrogen, sodium, potassium, chloride, phosphorus and calcium. Creatine storage in muscle is promoted by testosterone but not by methyltestosterone, fluoxymesterone or norethandrolone. An increase in serum cholesterol commonly follows administration of drugs of the androgen series.

### *Androgenic Properties:*

Androgens provide for development and maintenance of secondary masculine sex characteristics, i.e., body hair growth, deepened pitch of the voice, increased sebaceous gland secretions, development of male genitalia and masculine aggressiveness. The administration of these compounds can frequently be shown to produce alterations in mood which may include euphoria, increased appetite as well as the sensations of increased strength and reduced fatigability in both sexes. The latter psychic sequelae are generally in excess of demonstrable anabolic effects.

Atrophy of the testes and suppression of ovulation follow administration of the androgens.

In small doses the androgens produce a progesterone-like effect in maintaining the estrogenized (proliferative) uterine endometrium but do not induce the slight rise in body temperature which is a characteristic of progesterone effect. Inhibition of intermittent uterine contractions may also follow administration of these agents. Large doses of androgens lead to an anti-estrogenic effect on the endometrium and atrophy of the vaginal mucosa.

### TOXICITY:

Side effects of androgen therapy are largely the result of undue physiologic effects of these agents. Excessive doses in the female (more than 200 mg. of testosterone propionate monthly) may lead to oily skin, acne, thinning of the scalp hair, beard growth, enlargement of the clitoris, cessation

of menses, increased libido and other manifestations of masculinization. In the male, gynecomastia (especially with methyl testosterone), decreased spermatogenesis, and priapism may occur. In both sexes overenthusiastic use of androgens may lead to hypercalcemia (particularly if the patient is immobilized), hyperlipemia, diminution of cardiac reserve with cardiac decompensation, hypertrophy of the kidney with oliguria, and premature epiphyseal closure. Anxiety symptoms may be induced in both sexes and undue activity in the aged individual may be provoked.

Methyltestosterone and norethandrolone (Nilevar) in relatively large doses for prolonged periods may provoke jaundice. This jaundice appears to be due largely to bile stasis in the liver. Increased bromsulphalein retention occurs in a high percentage of patients receiving Nilevar.

### CONTRAINDICATIONS:

The use of androgens is inadvisable in the presence of carcinoma of the prostate, benign prostatic hypertrophy, congestive heart failure or renal failure. Methyltestosterone and Nilevar are contraindicated in the presence of liver disease.

### THERAPEUTIC INDICATIONS:

The dosage of androgens is generally governed by the attainment of desired therapeutic effects with a minimum of side effect. There is considerable variation among individuals in their sensitivity to these hormones and thus the dosage must be titrated with these factors in mind.

Males with deficient gonadal secretions are generally particularly sensitive to androgenic therapy. Treatment of these individuals is begun cautiously at the time of puberty (9½ to 11 yrs.) to the purpose of mimicking puberal changes. Doses of methyltestosterone in the order of 5 mg. daily by the oral route (or comparable androgen) are generally adequate for the development of secondary sexual characteristics. Once the male characteristics are fully developed the withdrawal of androgens is accompanied by relatively minor decline in masculine conformation. Under such circumstances (secondary hypogonadism) a low androgen titer

may be manifested by such evidence as soft "pasty" skin which doesn't tan well and shrinking with depigmentation of the scrotum; the timbre of the voice and size of the genitalia do not regress. The proper dose of androgen for these individuals can be gauged upon the basis of correction of the above manifestations, as well as other evidences of virilization, and increase in libido and potentia. Adult hypogonadal individuals are ordinarily maintained on androgenic doses comparable to testosterone propionate 25 mg. I.M., twice weekly. The hypothetical "male climacteric" as manifested by mental and emotional symptoms, waning libido and potentia, fatigability, loss of ambition, lassitude and vasomotor instability may occasionally be benefited by comparatively large doses of androgens (T.P. 25 mg. I.M. 2-3 x weekly).

A limited growth increment may occur in various types of dwarfism in both sexes following administration of androgens; however, the use of these agents in the treatment of delayed adolescence and cryptorchidism is unwarranted. Premature epiphyseal closure may follow over-exuberant use of androgens in younger individuals.

Oligospermia may be temporarily corrected following the withdrawal of large doses of androgens. To this end testosterone propionate 150 mg. is administered intramuscularly at weekly intervals (or equivalent) for 4 doses; increased spermatogenesis occurs within 4-6 weeks after the last injection.

Dysmenorrhea and premenstrual tension may be reduced by administration of androgen during the last two weeks of the menstrual cycle (testosterone propionate 10-25 mg. I.M. twice weekly).

Painful post partum uterine contractions may be reduced by small doses of androgens

begun at the conclusion of labor; larger doses may be employed at this time to suppress lactation or to reduce breast engorgement.

The painful masses of chronic cystic mastitis may subside under treatment with androgens. Functional uterine bleeding may be temporarily stopped with androgens in a manner similar to progesterone.

Temporary symptomatic relief in carcinoma of the breast of the post menopausal castrate female may be afforded by androgens in relatively large doses.

Androgens (frequently combined with small doses of estrogens) are frequently used in the treatment of osteoporosis, osteomalacia, and various of the arthritides. In these conditions the improvement which follows is largely of a symptomatic nature.

The catabolic effects of immobilization, Addison's disease, Cushing's syndrome and following prolonged administration of glucocorticoids may, at least theoretically, be somewhat mitigated by androgen therapy.

Miscellaneous uses of androgens have included the treatment of enuresis, uremia, anemia, anorexia nervosa, frigidity in females, loss of libido in the male, pruritis, endometriosis and prematurity in infants.

Sample Prescription: For the treatment of secondary hypogonadism in the adult male.

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

R;

Halotestin	005
Tabs. #50	
Sig: Tabs 1 daily.	

\_\_\_\_\_ M.D.

800 N.E. 13th, Oklahoma City, Oklahoma



## OU School of Medicine Awards 92 Degrees



Class of 1959—University of Oklahoma School of Medicine.

The University of Oklahoma School of Medicine awarded M.D. degrees to 92 members of the Class of '59 at commencement ceremonies held May 24 at Holmberg Hall on the Norman campus.

Degrees were conferred by George L. Cross, Ph.D., University president, and Mark R. Everett, Ph.D., D.Sc., Director and Dean of the Medical Center.

Fifty-five of the graduates will intern in Oklahoma hospitals. New M.D.s, their hometowns and internship appointments for 1959-60 are:

At University of Oklahoma Hospitals—Thomas B. Acers, M.D., Charles R. Key, M.D., Frederick Mannerberg, M.D., Lynn L. Myers, M.D., and Edward E. Smith, M.D., all of Oklahoma City; Roy Dixie Baines, M.D., and Joe T. Bledsoe, M.D., Tuttle; Jerry B. Cotner, M.D., Hartshorne; Nathan A. Guerink, M.D., Ardmore; Jess Hensley, M.D., Chelsea; Douglas C. Wilkerson, M.D., Okeene; Donald R. Pfeifer, M.D., Tulsa; Nancy Rabon, M.D., Copan, and Lloyd E. Rader, Jr., M.D., Binger.

At Wesley Hospital, Oklahoma City—Marcus W. Adams, Jr., M.D., Ray Motley, M.D., and James A. Kunkel, M.D., all of Oklahoma City; Richard G. Dotter, M.D., Alva; Lycurgus O. Laughlin, M.D., Stillwater; Horace D. Townsend, M.D., Tulsa,

and Joan L. Webb, M.D., Pawhuska.

At Mercy Hospital, Oklahoma City—Richard K. Alexander, M.D., and Doyle Johnson, M.D., Muskogee; Merle D. Carter, M.D., Tulsa; Clint E. Chambers, M.D., Chickasha; John R. Trammell, M.D., Hollis; Billy D. Dotter, M.D., Alva, and Felix R. Kay, M.D., Big Cabin.

At Veterans Administration Hospital, Oklahoma City—Leroy M. Milton, M.D., Shawnee.

At St. Anthony Hospital, Oklahoma City—Robert K. Borron, M.D., Bethany; Edward Esparza, M.D., Stillwater; Thomas H. Fraley, Jr., M.D., Hominy; Billy J. Matter, M.D., Hooker; John H. Gardner, M.D., Guthrie; Phillip L. Shepherd, M.D., Wewoka; Carl R. Smith, M.D., Tulsa; Richard A. Storts, M.D., Norman, and Harold D. Wilkins, M.D., Elk City.

### Assignments in Tulsa:

At St. John's—Robert G. Bissell, M.D., Norman; John C. Day, M.D., Heavener; Damon G. Gregg, M.D., Beaver; George H. Ishler, M.D., Chickasha; James R. Kay, M.D., Oklahoma City; Bonnie G. Miller, M.D., Hardesty; Noel E. Miller, M.D., Yale; Thomas J. Smith, M.D., Guymon; and Thomas M. Story, M.D., Edmond.

At Hillcrest Medical Center—Charles A.

Clough, M.D., Norman; Donald D. Collins, M.D., Vinita; Max A. Deardorff, M.D., Tulsa; William E. Ellifrit, M.D., Ponca City; Robert R. Hillis, M.D., Lawton; Richard D. King, M.D., Duncan; Jesse S. Little, M.D., Minco; and Donald L. Randall, M.D., Pryor.

Interning in medical centers out of the state are:

University of California hospitals, Los Angeles—Byron J. Bailey, M.D., Oklahoma City. Tripler Army hospital, Honolulu, Hawaii—John W. Barnhill, M.D., Oklahoma City. University of Texas Medical Branch hospital, Galveston—James E. Berry, M.D., Oklahoma City; James R. Carroll, M.D., Tulsa; Charles K. Casteel, M.D., Atoka; William S. Chambless, M.D., Chickasha; and David D. Rose, M.D., Oklahoma City.

Walter Reed hospital, USAF, Washington, D.C.—Horace J. Brown, M.D., Norman, and James W. Dyer, M.D., Miami, Okla. U.S. Naval hospital, Oakland, Calif.—John K. Chestnut, M.D., Duncan, and James D. Long, M.D., Enid. Salt Lake County General, Salt Lake City, Utah—Robert S. Cloud, M.D., Oklahoma City. Cook County hospital, Chicago—Richard A. Conley, M.D., Kingfisher. San Francisco hospital, San Francisco—Robert G. Davis, M.D., Tulsa.

Highland Alameda general, Oakland, Calif.—Robert H. Drewry, M.D., Lawton, and Charles L. Ritchey, Jr., M.D., Alva. Orange Memorial hospital, Orlando, Fla.—Emmett B. Ferguson, Jr., M.D., Hinton, and Kenneth D. Kiester, Jr., M.D., Duncan. Gorgas hospital, Canal Zone—Robert G. Franz, M.D., Enid, and Charles W. Simcoe, M.D., Stillwater. Bryan Memorial, Lincoln, Neb.—Victor E. Hanson, M.D., Pond Creek.

University of Kansas hospital, Kansas City—Paul C. Houk, M.D., Fairview. Washington Hospital center, Washington, D.C.—Jerry King, M.D., Barnsdall. St. Luke's hospital, Cleveland, Ohio—Irving Klein, M.D., Oklahoma City. St. Luke's, San Francisco—Jo Ellen Latta, M.D., Tulsa. Hurley hospital, Flint, Mich.—Billie Lewis, M.D., El Reno, and Vivian M. Lewis, M.D., Oklahoma City.

Bellevue Hospital center (2nd Medical division), New York City—Eugene Morkin, Jr., M.D., Oklahoma City. Johns Hopkins,

## Two New Faculty Appointments

Hugh Francis Maguire, D.D.S., clinical assistant in surgery and Mary N. Sloan, M.S.S., instructor in psychiatric social work, are new members of the faculty of the University of Oklahoma School of Medicine.



MAGURIE

Doctor Maguire, born in Oklahoma City, received his B.S. in bacteriology at the University of Oklahoma in 1950 and his D.D.S. degree as Kansas City Western Dental College in 1954.

Mrs. Sloan has been on the Medical staff since 1954. Serving four years as a medical social worker in the Department of Pediatrics, she transferred to the Department of Psychiatry December 1, and received her faculty appointment May 13.



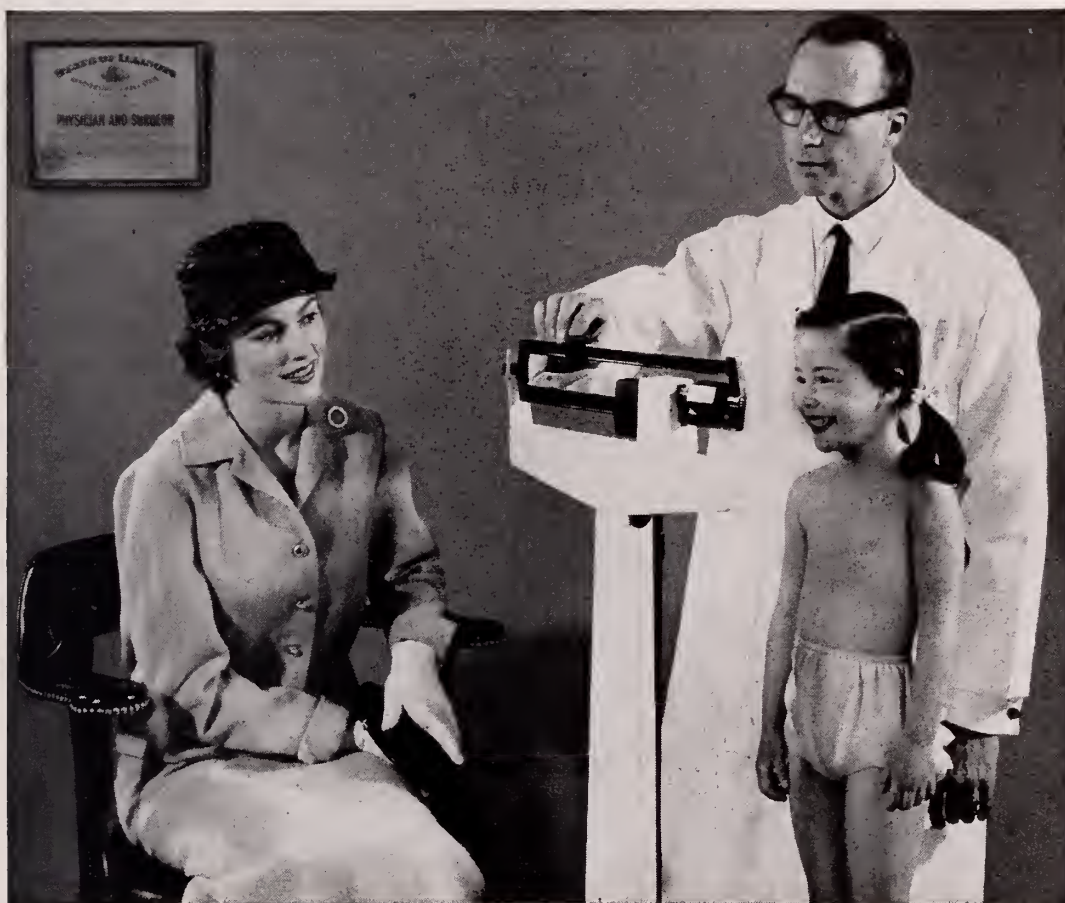
SLOAN

A native of New Jersey, she was graduated from the University of North Carolina with a B.A. in sociology, attended the University of North Carolina School of Social Work and received her master's in social work at Smith College School for Social Work in 1950.

Baltimore, Md.—Wiley H. Mosley, M.D., Oklahoma City, and Richard F. Tenney, M.D., Tulsa.

Mary Imogene Bassett, Cooperstown, N.Y.—Richard H. Runser, M.D., Oklahoma City. U.S. Naval, Camp Pendleton, Oceanside, Calif.—Ralph G. Sablan, M.D., Sinajana, Guam. Baylor University, Houston, Texas—Robert L. Stockton, M.D., Bethany. Sacred Heart General, Eugene, Ore.—Jimmy R. Strange, M.D., McAlester. D.C. General hospital, Washington, D.C.—John L. Townsend, M.D., Oklahoma City. U. S. Public Health Service, New Orleans, La.—Don R. Vesley, M.D., Tahlequah. St. Francis, Honolulu, Hawaii—Betty L. Whitener, M.D., Tulsa.





## Underweight Children Gain and Retain Weight with Nilevar<sup>®</sup>

One of the most convincing evidences of the anabolic activity of Nilevar, brand of norethandrolone, has been its ability to improve appetite and increase weight in poorly nourished, underweight children.

A highly important feature of the weight gain thus produced is that it is not ordinarily manifested by deposition of fat but as muscle tissue resulting from the protein anabolism induced by Nilevar.

**Anorexia and "Weight Lag" Study**—Brown, Libo and Nussbaum have reported\* consistent and definite increases in rate of weight gain in eighty-six patients, ranging in age from 7 weeks to 15½ years. This beneficial action of Nilevar was observed in the patients with organic and traumatic disorders as well as those whose only complaints were poor appetite and/or persistent failure to gain weight.

In this study, the weight gained was not lost

after discontinuance of Nilevar therapy although many patients did not continue the sharp gains effected by the drug.

The authors are of the opinion that Nilevar is a highly useful anabolic agent for influencing weight gain in underweight children.

When Nilevar is administered to children a dose of 0.25 mg. per pound of body weight is recommended and continuous dosage for more than three months is not recommended.

Nilevar is supplied as tablets of 10 mg., drops of 0.25 mg. per drop and ampuls of 25 mg. in 1 cc. of sesame oil. Further dosage information in Searle Reference Manual No. 4.

G. D. Searle & Co., Chicago 80, Illinois.  
Research in the Service of Medicine.

\*Brown, S. S.; Libo, H. W., and Nussbaum, A. H.: Norethandrolone in the Successful Management of Anorexia and "Weight Lag" in Children, Scientific Exhibit presented at the Annual Meeting of the American Academy of Pediatrics, Chicago, Oct. 20-23, 1958.



# PRESIDENT'S LETTER



## It Is Later Than We Thought

We received telegraphic notice June 25, 1959, that hearings on the Forand Bill, H.R. 4700, are scheduled to begin the week of July 13. It had been hoped that any action by the Congress would be delayed until factual studies could be made of the problem.

If I were asked, I would be tempted to say that the advancement of the hearings was motivated by political considerations, rather than any sudden deterioration of the national health.

The resources of the Oklahoma State Medical Association are being mobilized to define the problem to the individual members, the public, and members of Congress.

This will be a challenge to the Federal Government Relations Committee, and a test of the sense of responsibility of the individual members of O.S.M.A.

The active and unwavering cooperation of all is indispensable at this time.

A handwritten signature in cursive script that reads "Alfred T. Baker M.D.".

ALFRED T. BAKER, M.D.  
President

Report of the Sub-Committee on Research of the  
Committee on Aging of the Oklahoma State Medical  
Association.

## GERIATRIC RESEARCH in OKLAHOMA

LEONARD P. ELIEL, M.D.

THE DEVELOPMENT of means for the achievement and maintenance of physical, mental and social health and well-being should be the goal of research in the field of aging as it is in other fields.

The sub-committee believes that its principal function is to point out those areas in which the Medical Association can constructively assist in research in achieving its goals.

The resources available to organized medicine are at present too limited to provide anything but token financial support. Physicians as a group can, however, influence importantly policies, attitudes, and practices of private, state, and federal organizations in relation to research and education in this field. The Medical Association can also play an important part in the achievement of the goals by informing the public of the needs and accomplishments of research into problems of aging.

Problems in some areas have been well defined, are handsomely supported, and have yielded significantly to intensive investigation in recent years (cardiovascular and neoplastic disease). Research in other areas has been hampered by lack of interest, imaginative ideas, suitable techniques, well-trained research personnel, and funds (social problems, psychiatric disease, and basic studies of tissue changes in the aging process).

The "feast or famine" aspect of research support for problems of aging is illustrated by the distribution of funds into various categories within the University of Oklahoma Medical Center (the figures are approximate and do not include funds in the Veterans Administration Hospital research program, but do include Oklahoma Medical Research Foundation funds).

It is evident that the scope and nature of many of the problems in the field have

TABLE I

DISTRIBUTION OF FUNDS IN THE FIELD OF AGING	
in the	
UNIVERSITY OF OKLAHOMA MEDICAL CENTER	
(1958-59)	
1. Cardiovascular Disease*	\$275,538
2. Cancer . . . . .	255,519
3. Teaching**	78,776
4. Basic . . . . .	36,248
5. Psychiatry . . . . .	17,250
6. Arthritis . . . . .	17,000
7. Diabetes*	5,251

\*Extensive studies of lipid and carbohydrate metabolism in cardiovascular disease can also be considered as bearing on the problem of diabetes.

\*\*This category obviously includes teaching in other areas but would require considerable investigation for an accurate breakdown.

scarcely been defined or formulated, making it impossible to determine, without experience and investigation, what kind of work is most needed or where emphasis should be placed in terms of financial support.

Exploration of the potential role of teaching and research institutions, clinics, and physicians in the investigation, care, and prevention of geriatric problems is an urgent necessity. A gratifying step in this direction is the development of a geriatric clinic in the University Hospital. This clinic will acquire an experience with geriatric problems which should make it possible to: (1) determine their nature and magnitude, (2) suggest techniques for conferring adequate attention on them in the clinic setting, (3) give students, house staff, and practicing physicians experience in dealing with them, and (4) point out areas where exploration of preventive measures and research are needed. The Medical Association should recognize and endorse this constructive de-

velopment, encourage and assist in communication of the clinic's findings to the profession and consider, if needed, financial support of a clinic or other similar clinics should it prove successful and warrant continuation of an expanded or more widespread basis.

A vital role that the Association can play is in encouraging interest in the field and in dissemination of information pertaining to it. Several suggested means of doing so might be as follows: (1) annual prizes could be offered to medical students and house officers for essays or reports in the field which would be published by the State Journal, (2) a fellowship in geriatric studies might be supported by the Association in the School of Medicine, this fellow to work closely with the geriatric clinic, (3) one or more student fellowships might be offered for research in the fields of aging during a student's elective periods or time off, (4) the Association can urge that adequate attention be devoted to problems of aging in the curriculum and in post-graduate courses, (5) the Association should encourage the publication and review of results of research, both here and elsewhere, in the field of aging, and (6) the Association can assemble and distribute or publish information relative to sources of support for research into problems of aging.

Finally, the subcommittee feels that the interest of research into aging would best be served through an endorsement by the Medical Association of continued and increasing private and federal research support, particularly for relatively under-developed areas but most particularly for the training of capable research personnel in the setting of research and teaching institutions.



# Medical News

## Program Is Outlined for AHA Scientific Sessions

Early registration is recommended for those planning to attend the 32nd annual Scientific Sessions of the American Heart Association to be held at the Trade and Convention Center in Philadelphia, October 23-25. Physicians who register by mail will receive a complimentary advance copy of the program booklet containing abstracts of the proceedings. This program will cost \$2.00 at the meeting. Forms for registering and for reserving accommodations are now available from the Association, 44 East 23rd Street, New York 10, N. Y.

Following is a tentative outline of the Scientific Sessions program:

### *Friday, October 23:*

A morning session on clinical cardiology will be devoted to a symposium on "Regulatory Mechanisms of the Cardiovascular System." Simultaneous morning sessions are scheduled on rheumatic fever, congenital heart disease and circulation. The afternoon program includes: presentation of papers of general interest in clinical cardiology; the Lewis A. Conner Memorial Lecture, to be given by Doctor Lewis N. Katz, Director, Cardiovascular Department, Medical Research Institute, Michael Reese Hospital, Chicago; and a session on cardiovascular surgery.

### *Saturday, October 24:*

A morning session on clinical cardiology will consist of two symposia: "Recent Developments in Diagnostic Techniques" and "Open Heart Surgery in Acquired Valvular Disease." Concurrently, a morning session will be held on high blood pressure research. Scheduled during the afternoon are: presentation of the Albert Lasker Award; the George E. Brown Memorial Lecture, by Doctor Ludwig W. Eichna, Professor of Medicine, New York University College of Medicine; a symposium on "Congestive Heart Failure," including a panel on "Treatment of Congestive Heart Failure" and a presenta-

tion on "Life After Heart Failure"; a session on basic science; a session on cardiovascular surgery.

### *Sunday, October 25:*

Included in the morning sessions are a panel on "Conflicting Concepts of Atherogenesis" and a concurrent session on "Instrumental Methods in Cardiovascular Research." In addition to a panel on "Cardiac Resuscitation," to be conducted jointly with the American College of Cardiology during the afternoon, a concurrent session will be devoted to arteriosclerosis. The Association's Annual Dinner is scheduled for Sunday evening.

The Annual Meeting of the Association's Assembly, which will review national policies and activities and elect officers and Board members, will be held on Monday and Tuesday, October 26-27 at the Bellevue-Stratford Hotel.

## Colorado Hosts Course In Athletic Injuries

The University of Colorado's Third Annual Postgraduate Course on the Prevention and Treatment of Athletic Injuries will be held at the medical center in Denver on August 10, 11 and 12. Participating physicians will receive 21 hours AAGP credit (category 1) for attending the meeting, which is sponsored by the Division of Orthopedic Surgery and is designed as a refresher course for those serving as team physicians.

In addition to the scientific program, a number of social events are planned, including a Central City play and a banquet where films of the 1956 Winter Olympics will be shown.

Tuition for the course is \$40.00. Other information may be obtained by writing to the Office of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Ave., Denver 20, Colorado.

## Nine House Staff Physicians Receive Awards



Newly-established award for the most outstanding paper read at the annual meeting of Oklahoma Association of House Staff Physicians went to Gunnar Sevelius, M.D., left. John B. Saunders, president, Oklahoma City chapter, Medical Service Society of America, awards the rotating plaque which will remain in the Oklahoma City Veterans hospital until next year's winner is named.

Nine interns and residents training at six Oklahoma hospitals received awards for outstanding research and clinical papers presented at the fifth annual meeting of the Oklahoma Association of House Staff Physicians May 22.

Twenty-four scientific papers were selected for presentation at the one-day session at the Oklahoma City Veterans Administration Hospital.

Doctor Gunnar Sevelius, resident at Veterans Hospital, received a plaque from the Oklahoma City chapter, Medical Service Society of America, for the best paper in all categories, a report on "Coronary Blood Flow Determined by a Radioactive Surface Counting Technique."

Doctor Sevelius and Doctor C. A. Grimm, resident at University, won monetary prizes from Oklahoma State Radiological society for the best papers dealing with radiology.

The Medical Service Society also made cash awards for the top papers in: basic science, Doctor Robert M. Fagella, resident



Edward N. Farris, M.D., presents American College of Surgeons "best paper pertaining to surgery" awards to (left to right) David D. Snyder, M.D., Jack Stephenson, M.D., Norman A. Cotner, M.D., Harold W. Calhoon, M.D., John Kyriacopoulos, M.D., and C. A. Grimm, M.D.





Winners of top papers in three categories were Robert M. Fagella, M.D., left, in basic science, David D. Snyder, M.D., second from right, in surgery, and James W. Hampton, M.D., right, in medicine. John B. Saunders, second from left, made the awards for the Medical Service Society.

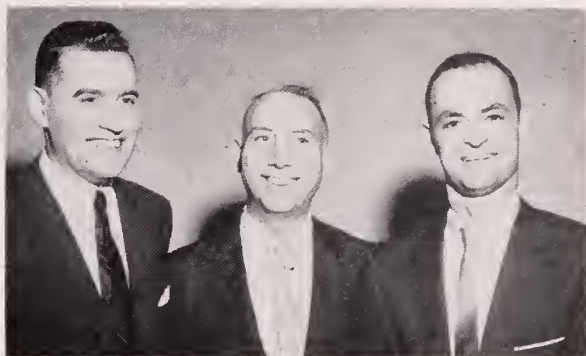
at University; surgery, Doctor David D. Snyder, resident at Veterans; medicine, Doctor James W. Hampton, resident at University.

First recipient of the Oklahoma chapter, American Academy of General Practice award for the best paper read by an intern was Doctor Norman A. Cotner, intern at Mercy Hospital, Oklahoma City.

Winners of the annual awards offered by the Oklahoma chapter, American College of Surgeons, for the six best papers in the field of surgery were: Doctor Cotner, Doctor Grimm, Doctor Snyder, Doctor John D. Kyriacopoulos, resident at University, Doctor Harold W. Calhoon, intern at Hillcrest Medical Center, Tulsa, and Doctor Jack Stephenson, resident at St. Anthony Hospital, Oklahoma City.

Doctor Earl Ginn, program chairman this year, was elected association chairman, succeeding Doctor James E. Webb, resident at University. Doctor Ginn is a resident at Veterans and was a 1958 award winner.

Association members also named Doctor Frank Howard, resident at Veterans, 1960 program chairman; Doctor William B. Shelton, Jr., intern at University, secretary-treasurer; and Doctor Howard Keith, resident at University, social chairman.



Oklahoma State Radiological society's cash award for a scientific report in the field of radiology was split between Gunnar Sevelius, M.D., left and C. A. Grimm, M.D., right. Peter E. Russo, M.D., center, made the presentation.



Norman A. Cotner, M.D., left, receives the Oklahoma chapter, American Academy of General Practice citation for the best paper presented by an intern. Making the presentation is Arnold G. Nelson, M.D.



## **Medicare Clarifies Policies on Malignancies**

In a recent communication from the Office of Dependents' Medical Care, the increasing case load involving malignancy was discussed and the policies clarified as to the eligibility requirements for such cases.

The ODMC has taken the position that the patient with a suspected and/or proven malignancy is acutely ill and qualifies for care under the program. It is further recognized by the Medicare authorities that immediate hospitalization is necessary despite absence of readily identifiable signs and symptoms. They also explained that such cases will be accepted for payment provided the patient otherwise qualifies (Medicare Permit is required where patient resides with serviceman) and where the physician certifies that the procedure was not "plan-nable."

### **Biopsies**

Biopsies performed on patients formally admitted to the hospital are payable provided the physician indicates the need for hospitalization and states that the biopsy was required to properly manage the suspected, or proven, malignancy which, in his opinion, constituted an acute condition. In instances where a Medicare Permit is required for the original admission, an additional permit will not be required for a subsequent readmission for surgery based upon a positive biopsy report.

### **X-ray Therapy**

Under certain circumstances the patient, in the opinion of the physician should receive x-ray, radium or radioisotope therapy rather than surgery. If the patient is otherwise eligible, and if such therapy is prescribed or initiated during a period of hospitalization, such care is compensable. Therapy may be continued on an out-patient basis if prescribed or initiated during hospitalization.

## **Pamphlet on Mis-Use of Plastic Bags Available**

Physicians may want to order complimentary copies of a new pamphlet on the use and mis-use of plastic film for distribution through their waiting rooms. The recent increase in infant and child fatalities attributed to accidental suffocation involving various forms of thin plastic films, such as garment bags, has prompted the Society of the Plastics Industries to prepare a pamphlet on the subject for the benefit of parents and others concerned with the care of children.

According to James L. Goddard, M.D., Chief, Accident Prevention Program, Department of Health, Education and Welfare, nearly sixty such deaths have been reported in the past two years. Thirty-five deaths have occurred since January 1, 1959, which points up the accelerated incident rate of mis-use of a useful product.

Cooperating with the plastics group in the preparation of the pamphlet were: The American Academy of Pediatrics, the AAGP, the National Institute of Dry Cleaning, the National Safety Council and the Public Health Service of the Department of HEW.

Forest R. Brown, M.D., Director of the Division of Chronic Disease Control, State Department of Health, 3400 North Eastern, Oklahoma City, has a limited supply of the pamphlets to distribute to physicians on request. The educational piece may also be obtained in quantity from the Society of Plastic Industries, Inc., 250 Park Avenue, New York 17, New York.

## **Oklahomans to Participate In National Conference**

The Oklahoma State Medical Association's Associate Executive Secretary, Mr. Don Blair, and the Executive Secretary of the Tulsa County Medical Society, Mr. Jack Spears, have been invited to appear on the program of the Medical Society Executives Association meeting in Chicago, August 19.

## Two Enid Doctors Differ on Merits of Service Contract

The Editor  
Journal, Oklahoma State  
Medical Association  
Oklahoma City, Oklahoma

Dear Sir:

For the past several months this writer has given much thought to the current controversial question of Full Coverage or Service Plan Medical Insurance. As many of you know, Oklahoma Blue Cross-Blue Shield has been selling such a plan in Garfield County. Briefly the plan guarantees to the insured, full coverage on medical, surgical and hospital services, if a resident of Garfield County and under medical care in Garfield County. In this letter I have listed a few of the reasons why such a program, Full Coverage Medical Insurance, is not right, is not wanted, is not beneficial to patient or doctor, and is the next step to socialized medicine. I write with deepest sincerity and I hope that I offend no one with my presentation.

### **The "Public Demand" For A Service Program Is The Planned Ice Program Of A Few**

At the initial introduction of the "Doctor's Plan" in Garfield County, Blue officials put much emphasis on increased collections to the participating physicians should such a program be accepted. Later, the program was presented as a means to curtail the fee hiker and to eliminate unreasonable medical-surgical fees. The Blue officials cited the many complaints of indemnity customers as an indication of public demand for a Service Program. We are well aware of customer complaints, fee hikers on the insured and unreasonable medical fees. From my own experience I can't help but feel that the complainers are but a small minority in the overall Indemnity Program. The "Doctor's Plan," that this minority demands, cannot eliminate fee hikers or unreasonable medical

fees. These guilty culprits wouldn't participate in a Service Program, so why must we remaining physicians sacrifice our freedom of levying fees for a lost cause? Let the Grievance Committees, public sentiment and the courts handle these abuses.

We were told by Blue officials that 75% of our nation's doctors are under some type of a Service Program. We were also told that a successful Service Program was the only prevention to Government medicine. If 75% of our doctors are under a Service Program and today we are closer to Socialized Medicine than at any other time I cannot accept the statement by Blue officials that a Full Coverage Program is the only prevention to Socialized Medicine.

Although Service Plans have been accepted by many State Medical Associations, they have likewise been rejected. Our own Tulsa County Medical Society rejected such a program. In 1946-1947 a Service Plan program failed in Woods County. I am curious to know why the Service Program has not been presented to our State Medical House of Delegates. I am curious why the Service Program has been confined to Garfield County. In states where a Service Plan is in effect there has been a constant wave of rate increases and requests for rate increases, some requests up to 50%. A Full Coverage Plan in New York City was given a rate increase, after a two day court battle, to offset the Service Plan loss of \$75,000.00 daily. Michigan clamped a ceiling on Blue payments to hospitals for the remainder of 1958 to forestall rate increases. During the past three years there has been a gradual increase in the number of Blue Plans that have a total expense in excess of annual subscriber income and likewise an increasing number that have experienced a deficit in net income. After six months under the Full Coverage Plan in Garfield County there



has been an increase in total number of cases, longer hospital stay, and cases paid. Blue Cross expenditures were 11.8% in excess of the subscriber income. Blue officials state there has been a cost increase of 19.6% over the previous Indemnity Program in Garfield County.

These facts and many others are confirmed in recent issues of the magazines, *Accident and Health Underwriter*, and *Accident and Sickness Review*.

#### **The Service Plan Would Divide The Medical Profession At A Time When Unity Is A Necessity**

I have noticed in recent publication various articles under the headlines: Blow-up Over Blue Shield, Blue Cross Blue Shield Jurisdictional Dispute Divides Doctors, M.D. Warns Blue Shield It's Going Too Far, etc. These headlines title many accurate and well written articles appearing in recent issues of the very popular *Medical Economics*, and other periodicals. In Wisconsin the Medical Society President resigned his position because of the bitter battle raging over the Blue Cross-Blue Shield controversy. In the last year, no less than three state medical societies, Michigan, Connecticut and Wisconsin have been rocked by major disputes over how Blue Shield has been run.

#### **A Service Plan Will Do Irreparable Damage To The Public Relations of Medicine**

Service Plans make definite and unqualified promises of complete coverage. Any failure would bring bitter dissatisfaction. The program has been sold as a "Doctor's Plan" and those that participate in the plan would be blamed for a failure, certainly not good public relations.

In some instances the public has interpreted the Service Plan as a scheme of the doctors to offer cut rate prices to a certain group. The Garfield Plan is not a plot or scheme, but it most certainly offers medical services at reduced prices to Blue Cross-Blue Shield members.

The "Doctor's Plan" of Garfield County has evoked the bitter resentment of many local insurance men who earn their livelihood from the insurance profession. The Insurance Underwriter's Association of Gar-

field County sent letters of protest to each member of the Garfield Medical Society and to numerous fellow insurance associations about our state. One group of local insurance men conducted an interview with the State Insurance Commissioner concerning the problem. All of which has not helped public relations of medicine in our county.

Lastly, there is a great danger that the doctor-patient relationship could be destroyed under the Service Plan. Surveys show that most patients want to pay some or all of the costs of their doctor's bills. The patient appreciates this responsibility. We must maintain the traditional concept that the individual is primarily responsible for paying for goods or services he uses. To overlook this concept is to entertain the philosophy that "some one else" is going to be responsible and if this erroneous philosophy is maintained by enough people, long enough, then it will make no difference who that someone else will be. Under the Service Plan the patient is apt to get the impression that the insurance company is paying for the doctor's service, or that his doctor has some financial arrangement with the company. This is a dangerous step in the direction of third party medicine. This "some one else" may even be the government. Lastly, if the patient becomes aware that his doctor must look to others for supervision as to the scope of care provided, the physician may lose prestige and dignity in the eyes of the patient.

#### **A Laborer Is Worthy Of His Hire**

This is one of the more important points for consideration. Repudiation of this basic concept is the heart of socialism. It is downright absurd for the lesser trained, lesser experienced worker to command the same financial gain as the skilled professional. The entire program of post graduate medical training can be destroyed. The Service Plan becomes the great equalizer when considering the physician's worth, with no regard for experience, knowledge, training, ethics, etc. True, complete confidence and the satisfaction of a job well done are deserved rewards for the more highly skilled, but let us not be too naive, financial reward is also desirable.



### **It Would Be Unwise To Join The "Fixed Income Group" In A Period of Inflation**

The value of the dollar has decreased about 50% in the past ten years. What will happen if your income is fixed and your overhead and cost of living continue to rise? Let us suppose that 100% of your practice succumbs to Service Plan Coverage. If you participate in the program that means that your income is set and fixed 100%. Your only means of meeting rising costs would be an increased number of patients or raising fees. Increased patient load, although unlikely in an established practice, would bring further cost increase. Increased fees under the Service Plan are impossible unless premiums are raised. Think of the damage to public relations, if an increase in premiums was requested to increase the doctor's income.

### **The Service Plan Places A Ceiling On Your Income But Doesn't Establish A Floor**

The Service Plan limits your income regardless of how well you do your work. This fact could easily cause the deterioration of good, conscientious medical care. The Service Plan leaves no latitude for the exercise of the doctor's discretion and judgment in levying fees for his services. The Service Plan does not and cannot guarantee that the participating doctor will receive the amount specified. When the income of the Service Plan falls and the demands increase, the plan will have to increase premiums, or decrease benefits, or lower the fixed fee payments to the physician. In view of the fee reductions already initiated in the Garfield County Plan, and the increased cost under the present Service Plan, I can't help but expect further fee reduction, rather than increased premiums, as the program falters.

### **Is A Service Plan Ethical?**

The Garfield County Plan has been advertised almost to the point of ballyhoo. During the active campaign for members, no expense was spared on radio, press and the mail. Blue officials were accused of soliciting members. Full coverage was promised although few patients realized this applied only to hospitalized cases. It was advertised as approved by all doctors in Gar-

field County, which was not true. Some Service Plans in other areas have published lists of participating physicians.

From personal experience with the Garfield County Plan I have come to learn how a non-participating physician can be at a great disadvantage with such a program. The new doctor, particularly, will find it most difficult to maintain a practice if he doesn't participate in the local program.

### **A Medical Association Sponsored Service Plan Can Destroy Freedom Of Enterprise**

Service Plan programs can underbid private insurance companies that operate under the free enterprise, profit making, capitalistic system which we must all agree is the foundation of our American economy. It would seem that the adoption of a Service Plan is another method to create a monopoly of health insurance and middleman control of the practice of medicine. It would seem that the Medical Profession is a party to the destruction of free enterprise by destroying private insurance companies. Medical insurance companies sponsored by doctors can be legally regarded as unfair competition. Service Plans may be in violation of the Sherman Anti Trust law. Courts might decide that "fixed fees" in medicine constitutes price fixing. Charges have been made in Oregon by the United States government against the Oregon State Medical Society. Prosecution for price fixing must be considered.

I am informed by legal consultants that here in Oklahoma the Garfield County Plan might be ruled illegal. Informants tell me that it is in violation of the Unfair Practices and Frauds Act, and Oklahoma Law §79. Paragraph 8 of Section 1204 of the frauds Act states that any means to induce into a contract of insurance constitutes a rebate. In the same section 1204, rebates are declared unfair methods of competition. Oklahoma Law §79 states that it is unlawful for any person, selling a commodity or rendering a service to the public, to discriminate between different persons by selling or rendering a service at a lower price if the effect is to establish a virtual monopoly or to destroy the competition of any established dealer in such a commodity. Our State In-

insurance Commissioner states that Oklahoma Law #79 may not be applicable to the Blues Corporation, a non profit organization free of State Insurance Laws. He further states, concerning Section 1204, that rebates and unfair methods would necessitate a hearing before the Commissioner to determine if a violation has occurred.

Let us not forget that the Garfield County Full Coverage Program is the only program in the United States that offers complete coverage. Present Oklahoma laws and interpretation apply to the Indemnity Type Medical Program.

#### **Indemnity Plans Permit The Individual To Choose The Extent Of His Insurance Coverage**

Total coverage in all other fields of casualty insurance is regarded as economically unsound. Premiums for total coverage would be prohibitively high. Total medical coverage requires that all individuals pay high premiums for services which they may never require. It also requires all to pay for the abuses of the malingerer, the neurotic, and others who desire but do not need such attention.

Here, in Garfield County, the Doctor's Plan gave the insured no choice as to his insurance coverage. Blue Cross-Blue Shield members of the old indemnity plan accepted the new program or got out. He was sent a new Service Plan policy and not at his request. It is surprising how very few actually understood the program clearly.

PATRICK SHANKS, M.D.,  
1800 S. Van Buren,  
Enid, Okla.

*Doctor Henry T. Russell was asked by the Editors to comment on Doctor Shanks' letter. His answer follows:*

June 4, 1959

The Editor,  
Journal, Oklahoma State Medical  
Association  
Oklahoma City, Oklahoma.

Dear Sir:

This letter is written in answer to the letter of Doctor Pat Shanks and is an at-

tempt to clarify some of the questions which he raises. In all fairness, it should be stated that Doctor Shanks has been strongly opposed to the service plan in Garfield County since its inception. This, of course, is his right and duty since he believes a service plan is detrimental to medicine. However many of his arguments are inaccurate, based on his lack of knowledge of the plan and many other of his arguments are simply personal opinions or opinions based on articles that favor his position. Numerous articles favoring the opposite position can be cited. In an attempt to set the record straight, I would like to discuss briefly the origin of the Garfield County Service Blue Shield Plan.

The Garfield Plan was not the brain-child of a "few" doctors as is suggested by Doctor Shanks' letter. The Garfield County Blue Cross-Blue Shield member council requested the president of the Garfield County Medical Society to consider the feasibility of such a plan. The president appointed a committee of seven doctors to study the problem and make recommendations to the Society. This committee was representative of all types of medical practitioners. The committee met numerous times (no Blue Cross-Blue Shield officials were ever present at the committee meetings) and unanimously concluded that a service plan would be desirable. The committee recommended to the Society that a service plan be developed with the Blue Shield-Blue Cross. The Society concurred and such a plan was developed. This plan was approved by 90% of the members at a regular meeting of the Garfield-Kingfisher County Medical Society. Every member had ample opportunity to express his likes and dislikes.

Doctor Shanks states that the Garfield County plan "guarantees full coverage" on medical, surgical and hospital services and is the "only program in the U. S. that offers such complete coverage." This is a gross misunderstanding on his part as to the coverage of the plan. The Blue Cross plan is no more complete than the rest of the Blue plans in the state, with the following exceptions. (1) The Garfield plan pays \$12 a day instead of \$6 per day on a private



room. (2) It pays hospital fees in full. (3) It pays up to \$75 diagnostic X-Ray in accident cases instead of \$15.

The Garfield Blue Shield Service Plan is no more complete than the state-wide indemnity plan except that the participating physicians agree to accept the scheduled fee as full payment. There is also a provision for paying consultants and surgical assistants. In general the surgical fees are slightly lower and the medical fees are slightly higher than the other Blue plans. Also in general, the fees are based on the California relative value schedule and the Oklahoma medicare schedule. There is a provision in the Garfield plan to pay 50% more than the scheduled fee for difficult or unusual cases (up to a total of 10% of a doctor's cases) and this provision has not been over utilized. Less than 2% of the total bills have requested the extra 50%. Many of our doctors have no cases requesting an additional 50%.

At the present time, only three of approximately 45 busy, active doctors in Garfield County are not participating in the plan. Any doctor may withdraw from the plan whenever he desires. It is interesting to note that the average hospital stay of patients of non-participating doctors (not including Doctor Shanks) is two times greater than the average hospital stay of patients of participating physicians. If the average stay of the patients of these men had been the same as that of the Garfield County physicians, Blue Cross would have saved over \$8000 in the first six months of the program and Blue Cross utilization would have run about 105% instead of 111%. Blue Shield utilization in the first six months ran 79%.

The committee that wrote the Garfield Service Plan believed it was a good idea to try a service plan for the following reasons:

1. We believe the people want to be able to budget their medical expenses. We disagree with Doctor Shanks' contention that patients want to pay the doctor a fee in addition to paying their medical insurance premiums. Budgeting in regular monthly payments has become a fixed part of our people's financing whether we agree with it or not.

2. We do not believe in "soaking the rich." The federal government is already taking care of that. Whereas it is true that a worker is "worth his hire," it is also true that a particular service is worth just so much, regardless of who does it. It must be assumed that all physicians are capable of doing a satisfactory job in any type of procedure that they attempt. As long as there is the present balance of general practitioners and specialists, I would expect that this assumption will be continued in our medical practice. The patients themselves make the decision as to who will perform any procedure upon them. Some unusual physician may develop great skill in doing a particular procedure but is he entitled to place an extravagant fee on the service? If he does, he will end up doing his service only for the wealthy (I saw exactly this sort of thing develop in the "vagotomy" operation). This is not in the best tradition of medicine. The committee (general practitioners, surgeons, internists, etc.) try to get reasonable fees for all cases with opportunity for 50% increase in difficult cases. If a wealthy man demands more attention than his Blue Shield fee can be increased 50% but the increase is due to the increased work in the case, not merely because the man is wealthy.

The charge that the "entire program of post graduate medical training can be destroyed" by a service plan is somewhat ludicrous and I think this answers the question that most objectors raise about the service plan. Frankly it concerns money. There is a fear of limitation of income. This problem only becomes acute as our practices expand. Personally, I honestly do not know any man in medicine who entered the field of medicine to make money. If you reflect on your thoughts when you are entering medical school, how many actually thought of getting rich? Very few, if any. Of course everyone counted on a good comfortable living because practically all good doctors make such a living and will no doubt continue to do so. However the money question is only the primary reason for entering the medical field in only a very few instances. After receiving the M.D. degree how many doctors become specialists to get rich? Very few. Most specialists limit their



practice because they have a special interest or ability in a particular field or because they do not want to live the relatively more difficult life of a general practitioner. I am sure that any man who becomes an M.D. primarily for money will be sad indeed because the work is hard and the hourly pay is too low to be adequate compensation. The specialist who specialized only for the purpose of increased income will be equally unhappy. It is peculiar how our attitudes change primarily as our practice and incomes increase. Honestly now, what difference does it make what the other guy is getting as long as you individually are getting a fair price for your service? You can't take it with you. Our socialistic tax system will see to that.

A. The last paragraph of Doctor Shanks' letter states that "total medical coverage" will require all individuals to pay high premiums for services they never require and that all will have to pay for the abuses of the few. This is true of all types of insurance. Everyone always pay for the abuses of the few in every facet of our society and insurance companies are well aware of this as is evidenced by the high premiums for car insurance for drivers under 25 years of age. However, the individual cannot choose the extent of his coverage by indemnity plans because he soon discovers a few selfish doctors will raise their fees if the patient has insurance.

B. A "third party" in medicine is regrettable but at least the physicians of Garfield County definitely have control of their program. This would not be true to any extent under government medicine. The cost to the patient of the Garfield plan is

low enough that practically all people can afford it and we think the people will choose private coverage instead of government medicine as long as they can afford it.

Finally, the Garfield Plan was set up locally as an experimental plan. We wanted to see if we could make it work to our satisfaction and to the satisfaction of the patient. There have been many complaints from doctors and a few from patients. The committee is doing everything to try to make the necessary changes to have a good program that is paid for by the patients and run primarily by the doctors. We regret that we cannot work out a similar plan with the good commercial insurance companies who are represented by very fine agents in Garfield County. This has been impossible as most of the insurance agents here will agree. We have met with them and discussed this problem.

The committee has recommended that the Garfield Plan be changed in two ways. (1) Sell only \$25 deductible Blue Cross and (2) Discontinue paying consultants (this has been the biggest problem with the doctors). If these two changes are adopted we feel that we have a very good plan that is reasonable for the doctor, relatively inexpensive but fairly comprehensive for the patient and we do think that it will help combat socialized medicine.

Sincerely,

HENRY T. RUSSELL, M.D., Chairman  
Insurance Committee  
Garfield-Kingfisher County Medical  
Society  
Enid, Oklahoma

# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER

### Postgraduate Course in Medical Mycology

July 18-19, 1959 Room 118, Medical School Building  
Oklahoma City, Oklahoma

The Department of Dermatology, University of Oklahoma Medical Center and The Oklahoma Dermatological Association will present a Postgraduate Course in Medical Mycology on July 18 and 19, 1959. This course is open to members of the Oklahoma, Arkansas, Texas and Rocky Mountain Dermatological Associations, General Practitioners of Oklahoma and Laboratory Technicians of Oklahoma. Enrollment fee for the course will be \$10.00 and attendance is limited to 40 members. Complete details are available by writing to the Office of Postgraduate Education, University of Oklahoma Medical Center, 801 Northeast 13th Street, Oklahoma City 4, Oklahoma.

### Oklahoma Chapter

## AMERICAN ACADEMY OF GENERAL PRACTICE

September 13, 1959 Lake Murray Lodge  
Ardmore, Oklahoma

The Sixth Annual Meeting of the Red River Valley Section, Oklahoma Chapter, American Academy of General Practice, will be held at Lake Murray Lodge, Ardmore, September 13, 1959. Participants will receive four hours credit, Category 1. For further details, write to Roger Reid, M.D., 1001 15th, N.W., Ardmore, Oklahoma.

## OKLAHOMA ACADEMY OF GENERAL PRACTICE SYMPOSIUM

October 2, 1959 Skirvin Hotel  
Oklahoma City

The Oklahoma Academy of General Practice, the University of Oklahoma Medical Center and Lederle Laboratories will present a Symposium on "Medical and Surgical Problems in the Senior Citizen," to be held October 2, 1959 in the Skirvin Hotel, Oklahoma City. Further information may be obtained by writing to Nolen Armstrong, M.D., President, Oklahoma City District, A.A.G.P., 2925 N.W. 50th, Oklahoma City, Oklahoma.

## POSTGRADUATE COURSE PREVENTION AND MANAGEMENT OF ATHLETIC INJURIES

University of Colorado  
Medical Center

August 10, 11, 12, 1959 Denver, Colorado

The third Annual Postgraduate Course on the Prevention and Management of Athletic Injuries for the

Team Physician will be held in Denver, August 10, 11 and 12. Participating physicians will receive 21 hours AAGP credit (Category 1) for attending the meeting. Additional information is available by writing to the Office of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Ave., Denver 21, Colorado.

## AMERICAN HEART ASSOCIATION

### 32nd Annual Scientific Sessions

Trade and Convention Center October 23-25, 1959  
Philadelphia, Pennsylvania

The 32nd Annual Scientific Sessions of the American Heart Association will be held at the Trade and Convention Center in Philadelphia, October 23-25, 1959. Forms for registering and for reserving accommodations are now available from the Association, 44 East 23rd Street, New York 10, New York.

### 13th ANNUAL

## ROCKY MOUNTAIN CANCER CONFERENCE

July 22-23, 1959 Brown Palace Hotel  
Denver, Colorado

The Rocky Mountain Cancer Conference will be held at the air conditioned Brown Palace Hotel in Denver, July 22 and 23, 1959. Further information concerning the program and reservations may be obtained from Rocky Mountain Cancer Conference, 835 Republic Building, Denver 2, Colorado.

### 24th Annual Congress

## INTERNATIONAL COLLEGE OF SURGEONS

September 13-17, 1959 Chicago

The 24th Annual Congress of the North American Federation, International College of Surgeons, will be held in Chicago, September 13-17. The federation is composed of the United States, Canadian, Mexican, and Central American Sections. For information, write to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

## INTERNATIONAL COLLEGE OF SURGEONS

November 16, 17, 18, 1959 Hot Springs, Virginia

The Mid-Atlantic Meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia on November 16, 17, 18, 1959. For further details contact: E. G. Gill, M.D., State Regent, International College of Surgeons, 711 South Jefferson Street, Roanoke, Virginia.

## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**THE AMERICAN COLLEGE OF PHYSICIANS FILES A BRIEF IN SUPPORT OF THE DEFENDANT IN THE "CUTTER" CASE**—On December 19, 1958, the American College of Physicians filed an *amicus curiae* brief in the California District Court of Appeal in the "polio" suits against Cutter Laboratories.

The College of Physicians argued, in part: "We believe that when, as in the cases before the Court at this time, a biological is made according to strict governmental specifications and complies with the best scientific and productive knowledge available, and when the manufacturer is absolved of all possible negligence by the jury, as this defendant was, no liability should be incurred when an injury occurs because of the user's own peculiar susceptibility or because of insufficient scientific knowledge at that time. To create such an absolute liability would be to saddle the world of medical science with an unfair burden." In its brief, the College of Physicians also argued that "the supplying of biologicals to a patient . . . is so closely related to the treatment by the physician that it is properly considered as part of his services. Since . . . the supplying of a certain antibiotic or vaccine is not a sale, and is so allied with the physician's professional service, it is not subject to warranties or to the Sales Act."

*Amicus Curiae Brief of American College of Physicians in Support of Defendant and Appellant Cutter Laboratories. Gottsdanker v. Cutter Laboratories and Phipps v. Cutter Laboratories*, 1 Civil No. 18,413 and 1 Civil No. 18,414, respectively, District Court of Appeal, State of California, First Appellate District, Division Two, Dec. 19, 1958.

*DePasquale v. Board of Regents of University*, 179 N.Y.S. 2d 239 (N.Y., Nov. 10, 1958).

**RENTAL VALUE OF LIVING QUARTERS NOT TAXABLE**—The United States Court of Appeals held that a physician employed by the Veterans' Administration as Chief of Professional Services at a Veterans Hospital, who for the convenience of his employer was required to accept living quarters on the employer's premises as a condition of his employment, was entitled to exclude the rental value of such premises from his gross income, regardless of whether the value of the rental quarters was considered part of his compensation.

*Boykin v. Commissioner of Internal Revenue*, 260 F. 2d 249 (C.A. 8, Oct. 30, 1958).

**PHYSICIAN'S LICENSE TO PRACTICE REVOKED AFTER HE PLEADED GUILTY TO THE ILLEGAL DISPENSING OF A NARCOTIC DRUG**—A physician who was licensed to practice in New York and Florida pleaded guilty to violating the Narcotic Law of Florida. He was sentenced to a prison term of three years or pay a fine of \$5,000. The New York Supreme Court, Appellate Division, Third Department, upheld the New York Board of Regents revoking his license to practice. The Court held that by entering a plea of guilty in Florida to the illegal dispensing of narcotic drugs he had admitted to an offense falling within the meaning of the word "dispense" as provided in the New York Penal law, and this constituted a plea of guilty to an act which would have been felonious in New York.

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



# Organization News

## Oklahoma Medics Visit With Congressmen

A delegation of representatives of the Oklahoma State Medical Association hosted members of the Oklahoma Congressional Delegation at a breakfast on June 12 in the nation's capitol. Some members of the physician's group were returning home from the Atlantic City A.M.A. meeting, while others were in Washington to attend the First National Conference of the Joint Council to Improve the Health Care of the Aged.

Those representing the O.S.M.A. were: A. T. Baker, M.D., President of the O.S.M.A.; Hayden H. Donahue, M.D.; Chairman of the Association's Committee on Aging; John F. Burton, M.D., Member of the A.M.A. Council on Medical Service and Chairman of the A.M.A. Committee on Indigent Medical Care; Joe L. Duer, M.D., Alternate Delegate to the A.M.A.; and Don Blair, Associate Executive Secretary of the O.S.M.A. Mr. Cleveland Rogers, Executive Director of the Oklahoma State Hospital Association was also in attendance, as was Mr. James Foristel of the A.M.A.'s Washington Office.

The Oklahoma legislative delegation was represented by Senator A. S. Mike Monroney, and Representatives Tom Steed, Carl Albert, Ed Edmondson and Toby Morris. Conflicting schedules prevented Senator Robert S. Kerr and Representatives John Jarman and Page Belcher from being present.

### Forand Bill Discussed

Principle topic of discussion during the informal meeting was the Forand Bill, a legislative proposal which, if enacted into law, would offer socialized medical, hospital, dental and nursing home care to over 15 million social security recipients. The bill is now resting in the House Ways and Means Committee in spite of tremendous pressure from the AFL-CIO, behind-the-scene sponsor of the legislation, to hold public hearings.

### LATE DEVELOPMENT

At press time, the OSMA has learned that Representative Wilbur Mills (D. Ark.), Chairman of the House Ways and Means Committee, scheduled public hearings on H. R. 4700 beginning July 13. OSMA Federal Legislative Committee activated write-in campaign to Oklahoma members of U. S. House of Representatives.

President Baker opened the meeting by informing the legislators of the interest that Oklahoma physicians have in the health and welfare of senior citizens, as evidenced by their presence in Washington to attend the national meeting on this subject, and told them of the positive steps being taken by organized medicine to offer a free enterprise solution to the health problems of the aging in lieu of hasty, ill-conceived governmental programs. Doctor Donahue then presented a detailed roundup of the activities of the O.S.M.A. Committee on Aging, which has made much progress during the past year in evaluating the possible unmet needs of senior citizens and investigating ways of improvement through the normal channels of providing medical and health services.

In response, the legislators expressed their interest in the enthusiastic approach of organized medicine to the problem at hand. They also accepted Doctor Baker's offer to provide medical association counsel regarding Forand-Type bills by asking him for a detailed, written presentation of medicine's objections to the pending legislation and by promising to keep in close touch with the O.S.M.A. on such matters.

### A Letter to Congress

In response to the congressmen's request, Doctor Baker mailed the following letter to each member of the delegation:

Dear Sir:

First, let me again express the appreciation of

the physicians of Oklahoma for the gracious hospitality extended to O.S.M.A. representatives during our recent visit to Washington. It was gratifying to sit across the table from you and the other Oklahoma congressmen and discuss our mutual problem of improving the health care of our aging population.

During the course of our informal conversation, we expressed the unified opposition of the medical profession of Oklahoma toward any Forand-type legislation which would provide health care for this segment of the population at taxpayers' expense. It was then requested that we supply each member of our congressional delegation with a detailed presentation supporting our opposition in regard to this legislation. We trust that the following remarks will enable you to be well acquainted with the position of those who are charged with the ultimate responsibility of providing health care.

The so-called Forand Bill is no more—no less than socialized medicine! The governmental provision of medical, hospital, dental and nursing home services for some 15 million Americans may be called by another name—but it still represents a major departure from our proven economic system of free enterprise.

According to Abraham Lincoln, "the purpose of government is to do for people what they cannot do for themselves." In 1950, 20% of the people of this age group had health insurance of their own. Today—only nine years later—approximately 50% are covered through the efforts of private industry and through their own commendable desire to remain independent, and, as much as possible, self supporting.

In the face of such strides through our normal channels of progress, and, in the face of increasing awareness of the growing needs of the aging group, proponents of the ill-conceived Forand Bill are declaring a national emergency and are attempting to run roughshod over Congress and the American people.

No one will deny that the accelerated growth of the aging segment of our population poses a real challenge to the health care professions and to the insurance and prepayment organizations who have contributed so much to increased longevity. It is ironic that the product of their progress is now being wielded against them by those who would destroy the free enterprise system of medical care. General economic inflation, the real villain of the old folks, should not be used as a vehicle for ruining a system that has provided our citizens with the highest health care standards of any nation in the world!

The strongest force behind compulsory health insurance is the AFL-CIO. Forand's proposal has been placed high on the union's long list of legislative wants. It's not too difficult to "crystal-ball" the next step which would be taken in the event such legislation becomes law—demands will be made upon employers for wage increases to compensate for the imposition of additional taxes. Inflation gets another shot in the arm!

Here are some additional reasons why the bill is a threat to the American people, the doctors and the hospitals:

**1. Communities would be threatened with a shortage**

**of hospital beds.**

Under terms of the bill, beneficiaries could be lodged in hospitals and nursing institutions without charge up to 120 days each year. This could create a needless and dangerous crowding of hospital space.

In many countries where similar legislation is in effect, there has been a staggering increase in use of hospital facilities by those over 65. (In Saskatchewan, Canada, the average person over 65 occupies a hospital bed 7.2 days a year; in the United States the average person over 65 occupies a hospital bed 2.5 days a year.) Over-utilization of hospitals by social security beneficiaries would limit the number of beds available for the acutely ill of all ages.

**2. Community incentive to support and build hospitals would be curbed.**

Citizens would be inclined to shift the responsibility for building and supporting hospital facilities to the federal government and away from private and local governmental sources.

**3. Beneficiaries under the law would be restricted in their choice of hospital and physician.**

Only those hospitals and doctors entering into agreement with the federal government would participate in the program. Since a great many highly qualified doctors and hospitals would prefer to remain independent of government control, this could result in a limitation in the quality and quantity of medical facilities available to the beneficiaries.

**4. The principle of government regulation of professional fees, wages and prices would be introduced in the United States.**

Under the Forand proposal, the federal government would be given the right to fix the fees and charges to be paid to the participating physicians and hospitals. Historically, when such a principle as this is once established, it is extended to other segments of the population.

**5. It could bankrupt the social security program and jeopardize the basic retirement incomes of millions of Americans.**

There is no way of accurately predicting how much the Forand bill would cost. It could prove so costly that it would jeopardize the retirement security of millions of Americans who depend on social security for their basic retirement needs. For the first time last year, broadened benefits resulted in the social security system receiving less income than it paid out. Taxes to finance the present program are already scheduled to reach 8½% of payroll up to \$4,200 in coming years.

Up to now the principle of social security has been one of cash payments to persons reaching retirement age in return for taxes paid by them and their employers during their working years. The beneficiary is free to spend his retirement income as he pleases.

Now it is proposed that eligible persons be furnished medical and hospital service instead of cash benefits, thus permitting the federal government to spend social security funds as the government wishes rather than to permit the beneficiary the right to choose how he will spend his money.

**6. It would mean higher taxes, less take home pay.**

This plan would by 1975 result in annual payments



of \$228.00 by the employee and an equal sum by the employer.

The tax increases of self employed persons by 1975 could be as much as \$159.75 a year. The total payment for self-employed persons would be \$342.00 annually.

Any future income tax reductions would be more than offset by these social security tax increases.

**7. Demands by others for similar benefits could lead to total socialized medicine.**

The Forand bill would extend socialized medicine to the aged and would stimulate demands by other segments of the population for similar benefits. Ultimately the practice of medicine in America would be totally socialized, resulting in the inferior grade of medical care found in most countries with this system.

**8. Many aged persons would become unduly concerned with their health.**

By eliminating personal financial responsibility, many aged persons would seek unnecessary hospital and medical care for trivial and imaginary illnesses.

**9. It is hasty, ill-conceived legislation based on inadequate knowledge.**

No legislation such as the Forand bill should be considered until much more is known about the subject. No large-scale authoritative study has ever been made to determine the specific medical needs of older persons.

**10. The personal relationship between the doctor and his patient would be harmed.**

Government regulations would be imposed on patient and physician alike, bringing a third party into their personal and professional relationship. Conformance to administrative regulations could hamper the physician in prescribing treatment which in his professional opinion is indicated.

**11. The job of providing hospital and surgical services for the older population can be and should be handled through free enterprise.**

Private insurance companies have proved their ability to handle the extensive insurance needs of our growing population. Because of their experience and success in other fields, it is reasonable to allow them time to solve this additional problem—medical coverage for our citizens in the 65-and-over group.

The 50% in this age bracket who are already covered, illustrates the progress being made by the health insurance industry.

**12. It would discourage families from taking care of their own.**

Most families assist in caring for their ill, aged members. The Forand Bill would tend to destroy this traditional family responsibility and moral concept.

In summary, physicians are unalterably opposed to national compulsory health insurance—whether across the board, or limited in scope—because we believe voluntary enterprise can do the job better.

We recognize that, at the moment, there is a special need for action on behalf of the senior citizen. The precise extent and character of such need has not been clearly defined, but we know it to exist. Oklahoma physicians have recognized the problem and have undertaken a positive program to help solve it,

as have other state medical societies and the American Medical Association.

We have faith in Blue Cross, Blue Shield and private insurance companies as methods of financing the cost of illness. The hard-earned success story of American medicine and its allied professions and organizations must not be scuttled in favor of legislation which would write the first chapter of an ill-fated, regressive history of regimented health care.

A positive health program for older citizens calls for an all-out approach to the needs of all the aged, sick or well, so that special needs will be less in the future . . . not greater!

**The six objectives of American medicine are:**

1. Creation of a realistic attitude toward aging.
2. Promotion of health maintenance programs and wider use of restorative and rehabilitative services.
3. Extension of effective methods of financing health care for persons over 65.
4. Expansion of skilled personnel training programs and improvement of medical and related facilities for older people.
5. Amplification of medical and socio-economic research in problems of the aging.
6. Leadership and cooperation in community activities for senior citizens.

Care for the older citizen calls for a cooperative approach by medical professions and facilities, insurance companies, social workers and community leaders. It requires flexibility of medical approach and technique—not the rigidity inherent in government-controlled programs.

We are determined and dedicated to work positively on behalf of older Americans through voluntary programs of all types. We are equally determined and obligated to fight proposals for compulsory health insurance in any form.

Sincerely yours,

ALFRED T. BAKER, M.D.  
President

## **Institute of Ultrasonics In Medicine to Meet**

The American Institute of Ultrasonics in Medicine will hold their Annual Meeting on September 2, 1959 at the Leamington Hotel, Minneapolis, Minnesota. The guest speaker at the Luncheon Meeting will be Russell Meyers, M.D., Professor of Surgery and Chairman, Division of Neurosurgery, State University of Iowa Hospitals and College of Medicine, who will discuss "The Potentials of Ultrasonics in General Surgery and Surgical Specialties."

For any further information contact John H. Aldes, M.D., Secretary, 4833 Fountain Avenue, Los Angeles 29, California.



## REPORT OF AMA ACTIONS

The report of the A.M.A. Commission on Medical Care Plans, relations between medicine and osteopathy, the report of the Committee on Preparation for General Practice and the issue of compulsory Social Security coverage for self-employed physicians were among the major subjects which brought important policy actions by the House of Delegates at the American Medical Association's 108th Annual meeting held June 8-12 in Atlantic City.

Another highlight of the meeting was the appearance of President Dwight D. Eisenhower, who addressed an over-flow audience of more than 5,000 at the Tuesday night inauguration of Doctor Louis M. Orr of Orlando, Florida, as the 113th president of the A.M.A. It marked the first time that a President of the United States has addressed an A.M.A. annual or clinical meeting.

Doctor E. Vincent Askey of Los Angeles, speaker of the House of Delegates since 1955, was named president-elect for the coming year. Doctor Askey will succeed Doctor Orr as president at the association's annual meeting in June, 1960, in Miami Beach.

The 1959 Distinguished Service Award of the American Medical Association was voted to Doctor Michael E. De Bakey of Houston, Texas, chairman of the department of surgery at Baylor University College of Medicine, for his outstanding contributions in the field of cardiovascular surgery. Doctor De Bakey received the award at the Tuesday night inaugural ceremony.

Total registration through Thursday, with half a day of the meeting still remaining, had reached 28,225, including 12,921 physicians.

### Eisenhower Address

President Eisenhower, speaking at the inaugural ceremony in the ballroom of Convention Hall, warned that inflation posed the greatest danger to the traditional, free enterprise practice of medicine. The cost of inflation, he said, "is not paid in dollars alone but in increasingly stagnated progress, lost opportunities, and eventually, if un-

checked, in lost freedoms for the doctor and the patient." Mr. Eisenhower also expressed gratification at learning of A.M.A. leadership in the program to meet the health care needs of the aged.

### Commission on Medical Care Plans

The House of Delegates received Part I of the report of the Commission on Medical Care Plans as information only and then acted upon the Commission recommendations item by item. The House adopted 36 of the recommendations without change, but reworded three which relate to miscellaneous and unclassified plans. The changed recommendations now read as follows:

B-4. "In an effort to decrease, or at least to prevent an increase, in the over-all cost of health care, study should be given to the removal of the requirement of hospital admission as the only condition under which payment of certain benefits will be made."

B-6. "Medical care plans should be encouraged to increase their efforts to provide health education and information concerning the coverage of their subscribers."

B-16. "The American Medical Association believes that free choice of physician is the right of every individual and one which he should be free to exercise as he chooses. Each individual should be accorded the privilege to select and change his physician at will or to select his preferred system of medical care and the American Medical Association vigorously supports the right of the individual to choose between these alternatives."

In connection with free choice of physician, the House also requested the Board of Trustees to transmit to all constituent medical associations the "far-reaching significance" of Recommendation A-7, which says:

"'Free choice of physician' is an important factor in the provision of good medical care. In order that the principle of 'free choice of physician' be maintained and be fully implemented, the medical profession should discharge more vigorously its self-imposed responsibility for assuring the competency of physicians' services and their provision at a cost which people can afford."

The House also strongly endorsed Recommendation B-11, which declares that "Those who receive medical care benefits as a result of collective bargaining should have the widest possible choice from among medical care plans for the provision of such care."

Many of the Commission recommendations urged increased activity by state and county medical societies and the American Medical Association in such fields as continuing study and liaison, closer attention to legal and legislative factors, and the development of guides for the relationship between the medical profession and the various types of third parties. To carry out three of the recommendations involving the A.M.A. activities, the House also approved a seven-point program which it requested the Board of Trustees to transmit to the Division of Socio-Economic Activities for immediate attention.

### **Medicine and Osteopathy**

In considering a special report of the Judicial Council on the subject of osteopathy, the House adopted the following policy statement regarding inter-professional relations:

"(A) All voluntary professional associations between doctors of medicine and those who practice a system of healing not based on scientific principles are unethical.

"(B) Enactment of medical practice acts requiring all who practice as physicians and surgeons to meet the same qualifications, take the same examinations and graduate from schools approved by the same agency should be encouraged by the constituent associations.

"(C) It shall not be considered contrary to the Principles of Medical Ethics for doctors of medicine to teach students in an osteopathic college which is in the process of being converted into an approved medical school under the supervision of the A.M.A. Council on Medical Education and Hospitals.

"(D) A liaison committee be appointed by the Board of Trustees of the American Medical Association to meet with represen-

tatives of the American Osteopathic Association, if mutually agreeable, to consider problems of common concern including inter-professional relationships on a national level."

In another action concerning osteopathy, the House recommended that the American Medical Association representatives on the Joint Commission Accreditation of Hospitals suggest to the Joint Commission that they inspect upon request and consider for accreditation without prejudice those hospitals required by law to admit osteopathic physicians to their staff.

### **Preparation for General Practice**

The House approved and commended the final report of the Committee on Preparation for General Practice, which proposes a new two-year internship program for medical school graduates planning to become family physicians. To avoid unnecessary confusion, the House deleted only one sentence which read: "Indeed, the committee believes that the one year internship actually encourages inadequate preparation for general practice." The Committee on Preparation for General Practice included representatives from the A.M.A. Council on Medical Education and Hospitals, the American Academy of General Practice and the Association of American Medical Colleges.

The suggested program would include a basic minimum of 18 months hospital training in the diagnostic, therapeutic, psychiatric, preventive and rehabilitative aspects of medicine and pediatrics in a very broad sense, including care of the newborn. A physician then could elect to spend the remaining six months for additional training in other segments of the program. The committee stated, however, that participants who plan to practice obstetrics would be expected to spend at least four months of the elective period in obstetrical training.

The report declared that "the graduate program of two years in preparation for family practice should be planned and implemented as a unified whole" with a maximum continuity of assignment in specific services. The program also calls for ade-



quate experience in outpatient care and emergency room service.

### Social Security

In considering five resolutions on the subject of compulsory Social Security coverage for self-employed physicians, the House disapproved of four and adopted one reaffirming its opposition to the compulsory inclusion of physicians. In so doing, the delegates expressed concern over the possible effects that a change of policy might have on the Association's entire legislative program, particularly with respect to the Forand Bill.

The House also recognized "the apparent growing demand by physicians for economic security" and requested the Board of Trustees to investigate the possibilities of developing group insurance and retirement plans which could be made available to Association members. It accepted a reference committee suggestion "that the American Medical Association continue and expand its educational program to inform its members of the economic, social and moral advantages of economic security obtained within the framework of our free enterprise system rather than through the mechanisms of governmental Social Security."

### Miscellaneous Actions

In dealing with a wide variety of other subjects, the House also: Urged all physicians to participate more fully in community activities and *socio-economic matters* in their own communities but agreed that no change should be made at this time in Article II of the Constitution, which states Association objectives;

Approved in principle the aims and objectives of the President's Council on *Youth Fitness* and the Citizens Advisory Committee on the Fitness of American Youth;

Accepted a Board of Trustees recommendation that the *1962 Annual Meeting* be held in Chicago;

Expressed heartfelt thanks to the Committee on *Amphetamines* and Athletes, which has completed its assignment;

Requested the Board of Trustees to study the problems and possibilities of establish-

ing an A.M.A.-sponsored *medical scholarship* and/or loan program;

Approved the inclusion of *Today's Health* as a benefit of dues-paying membership and urged members to make it available to their patients;

Recommended that state medical societies, where advisable, initiate legislative efforts to eliminate *cancer quackery*;

Received a progress report indicating "phenomenal progress" in the field of health insurance coverage for *the aged* since the Minneapolis meeting last December;

Gave a rising vote of thanks to *Doctor Joseph D. McCarthy*, who finished his term as chairman of the Council on Medical Service;

Reaffirmed its full support of the Educational Council for *Foreign Medical Graduates*;

Endorsed the purposes outlined in the initial report of the *Medical Disciplinary Committee*;

Urged every A.M.A. member to give a substantial gift to the *medical schools* through the American Medical Education Foundation; and

Expressed appreciation for the outstanding *disaster medicine* program presented by the United States Army Medical Service on June 6, 1959, in Atlantic City.

### Opening Session

At the Monday opening session Doctor Gunnar Gundersen of La Crosse, Wis., retiring A.M.A. president, stressed the personal responsibility of every physician to keep abreast of medical advancements and to deliver "1959 medicine." Doctor Orr, then president-elect, called for concerted effort and medical leadership in four areas—the costs of medical care, recruitment of dedicated medical students, basic research and health care of the aged. Doctor Carl V. Moore, Busch professor of medicine at Washington University, St. Louis, was presented with the eighth Goldberger Award in clinical nutrition. Smith, Kline and French Laboratories of Philadelphia received a special A.M.A. award for its sponsorship of



color medical television over the past ten years.

### **Inaugural Ceremony**

Doctor Orr, in his Tuesday night inaugural address, affirmed his belief in the basic principles of medicine, democracy and faith under which America's physicians live. He pointed out that freedom must continually be fought for by men and women who are willing to stand up and be counted. Doctor Leonard Larson of Bismarck, N. D., A.M.A. Board Chairman, administered the oath of office to Doctor Orr, and the latter presented the Distinguished Service Award to Doctor De Bakey. The Fort Dix Band Chorus presented the musical program.

### **Election of Officers**

In addition to Doctor Askey, the new president-elect, the following officers were selected at the Thursday session:

Vice president, Doctor James Stanley Kenney of New York City; speaker of the House of Delegates, Doctor Norman A. Welch of Boston, and vice speaker, Doctor Milford O. Rouse of Dallas, Tex.

Doctor R. B. Robins of Camden, Ark., and Doctor Hugh H. Hussey Jr. of Washington, D. C., were re-elected for five year terms on the Board of Trustees. Also elected to the Board, for the first time, was Doctor Percy E. Hopkins of Chicago.

Doctor J. M. Hutcheson of Richmond, Va., was re-elected to the Judicial Council. Re-elected to the Council on Medical Education and Hospitals were Doctor Charles T. Stone Sr. of Galveston, Tex., and Doctor W. Andrew Bunten of Cheyenne, Wyo.

Doctor Willard Wright of Williston, N. D., was elected, and Doctor J. Lafe Ludwig of Los Angeles was re-elected to the Council on Medical Service. Doctor William Hyland of Grand Rapids, Mich., was re-elected to the Council on Constitution and Bylaws.

## **Date Set for Southeastern Oklahoma Clinical Symposium**

The McAlester Clinic Foundation and the University of Oklahoma School of Medicine, Department of Post Graduate Education will present the Fifth Annual Southeastern Oklahoma Clinical Symposium in McAlester, August 8-9, 1959.

The program will consist of scientific papers, clinical presentations and panel discussions.

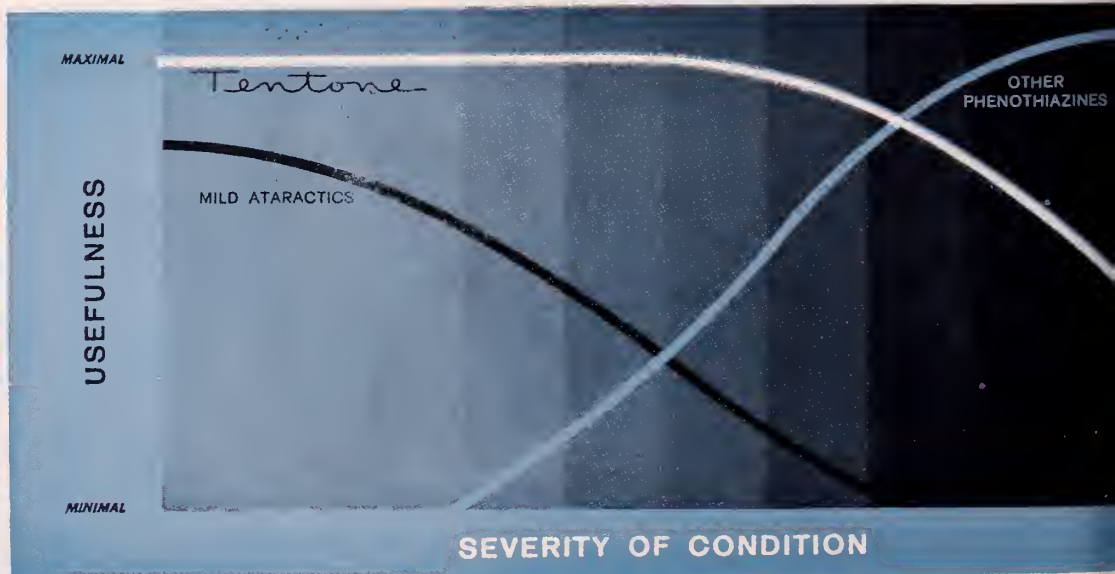
Guest speakers for the two-day meeting and their subjects will be: Willis E. Brown, M.D., Professor of Obstetrics and Gynecology, University of Arkansas School of Medicine, Little Rock, Arkansas, "Management of Eclampsia" and "Female Urology"; Joseph White, M.D., Department of Anesthesiology, University of Oklahoma School of Medicine, "Toxic Reactions to Local Anesthetic Drugs" and "Recent Advances in Anesthesia".

Also speaking will be John J. Schilling, M.D., Department of Surgery, University of Oklahoma School of Medicine, "New Developments in Homotransplantation" and "Deceleration Injury"; Robert Furman, M.D., Oklahoma Medical Research Center, "Nutritional Modification of Hormonal Influence On Serum Lipids: 1. Dietary Protein and Androgen, 2. Corticosteroids and Calories"; Harris D. Riley, Jr., M.D., Department of Pediatrics, University of Oklahoma School of Medicine, "Collagen Disease in Childhood" and "Aseptic Meningitis"; Thomas S. Gafford, M.D., Pathologist, Muskogee, "Functional Cysts of Ovary—Introgenic Ovarian Failure"; and Allen E. Greer, M.D., Assistant Professor of Surgery, University of Oklahoma School of Medicine, "Open Heart Surgery."

A complete program and reservations may be obtained by writing to Charles A. Miller, Business Manager, McAlester Clinic, Third and Seminole Streets, McAlester, Oklahoma.

new... highly effective tranquilizer

Comparison of TENTONE usefulness



..for extended office practice use

Tentone

Methoxypromazine Maleate

LEDERLE

NEW PHENOTHIAZINE COMPOUND FOR THE LOWER AND MIDDLE RANGE OF DISORDERS

◆ Positive, rapid calming effect in mild and moderate cases.  
◆ Striking freedom from organic toxicity, intolerance, or sensitivity reaction—particularly at low dosage. ◆ Greater freedom from induced depression or drug habituation. ◆ May be useful, as with other tranquilizers, to potentiate action of analgesics, sedatives, narcotics. ◆ Facilitates management of surgical, obstetric, and other hospitalized patients. ◆ Indicated when more than a mild sedative effect is desired...and less than psychosis is involved. ◆ Dosage range: *In mild to moderate cases:* from 30 to 100 mg. daily. *In moderate to severe cases:* from 75 to 500 mg. daily.

**LEDERLE LABORATORIES**, a Division of **AMERICAN CYANAMID COMPANY**, Pearl River, New York



Supplied



10 mg. tablets



25 mg. tablets



50 mg. tablets



## **Endocrine Society Names Turner as Schering Scholar**

The American Endocrine Society has named Henry H. Turner, M.D., Oklahoma City, as this year's Schering Scholar. The award was presented to Doctor Turner during June 5 ceremonies held in conjunction with the annual meeting of the organization in Atlantic City.

An anonymous committee of the Council of the Society selected the Oklahoman for the \$2500 grant on the basis of his accomplishments as an established investigator in the fields of endocrinology. The cash award is made possible through the generosity of the Schering Corporation and is presented annually to a deserving physician who wishes to extend the opportunities for his work either here or abroad.

Doctor Turner has announced that he intends to utilize the grant by attending both the 1960 International Goiter Conference, London, and the International Congress of Endocrinology, to be held in Copenhagen the same year. While abroad, he will also visit with a number of well-known European investigators.

In addition to being the Schering Scholar, he is also holding the office of Secretary-Treasurer for the national organization. Other current activities of national importance in which he is engaged include service as Associate Editor of the Endocrinology Section of the *Cyclopedia of Medicine* and his recent installation as President of the National Society of Nuclear Medicine.

## **New Pamphlet Aids in Nursing Home Selection**

A new pamphlet entitled, "Need Help in Selecting a Nursing Home?" has been prepared by the Hospital Division of the State Department of Health. The printed piece is designed to assist older citizens, as well as those who advise them, in the proper selection of a home to fit their particular needs.

Readers are advised to evaluate such considerations as licensure, living space, cleanliness, availability of adequately trained personnel, appearance of other patients, costs, special services (such as dietary), and compatibility of other occupants, before making

a selection. Most of all, they are advised to visit several such institutions before making any arrangements.

The pamphlet should prove a useful tool to physicians who are frequently asked for recommendations regarding nursing home facilities in their communities. A limited supply of the brochures is available through the health department by contacting Norma Schaefer, c/o Hospital Division, 3400 North Eastern, Oklahoma City. To cover printing costs, the pamphlets are sold at five cents each.

Larger quantities may be obtained from Mrs. Marjorie Magee, Secretary, Oklahoma Nursing Home Association, 2307 S. W. 27th Street, Oklahoma City.

## **Tulsa's New Doctors Building Opened**

The new seven-story Doctors Building at 21st and Lewis Streets, in Tulsa, was opened last month. Erected at a cost of \$1,500,000, the structure provides offices for fifty-three medical doctors and four dentists.

Among the facilities in the new building are two radiology laboratories, three pathology and bacteriology laboratories, a pharmacy, optician and coffee shop.

Work on the 65,000 square foot unit which was begun fifteen months ago was financed by its tenants through the self-owned Twenty-first Street Building Corporation, and is managed by the Fifth and Boston Corporation, a subsidiary of the First National Bank and Trust Company.

Of contemporary design, the building has walls of insulated porcelain steel panels, with structural columns and windows covered with aluminum. It is completely air-conditioned and uses a specially engineered type of heating equipment to meet the needs of multiple examination and treatment rooms. Each suite is designed to the individual requirements of the tenant. A modern decor is emphasized by the use of utilitarian furniture and equipment.

A parking area east of the building provides parking for patients and visitors. A second lot located west, across Lewis Avenue accommodates cars of doctors and office personnel.

Architects for the building were Murray, Jones and Murray.



### **Chickasha Clinic Plans New Building**

Work will begin soon on the new Chickasha Clinic to be located on a two acre site directly west of the new Grady Memorial Hospital. The one-story structure of approximately 11,200 square feet will provide space for eleven doctors.

Of modern design, the clinic will be constructed with eight inch brick which will form both interior and exterior walls around the perimeter. A double corridor in the physicians' area will eliminate unnecessary traffic and insure privacy. Exterior windows will be covered by a concrete solar screen.

Each physician will have a consultation room with two treatment rooms. The specialties will be situated in the clinic to be close to the ancillary services that will be necessary in each physician's type of practice.

Included in the over-all plan is space for a diagnostic x-ray suite, a clinical laboratory, emergency room, physical therapy room and a specially designed electrocardiographic room which is being constructed with certain protective lining in the walls, with current provided by a battery system to insure accurate ECG tracings. The administrative department will include a large public lobby plus five smaller waiting areas.

A separate pharmacy building to be located in the front of the clinic will be joined by an overhead structure. Adjacent to the building will be parking space for 75 automobiles.

Architects for the clinic, which is scheduled for completion in December 1959, are Brauer and Wood of Chickasha. It will be built by Walter Nashert Construction Company, Oklahoma City.

### **Kerr to Oppose Social Security for Doctors**

Senator Robert S. Kerr has informed the OSMA office that he will continue to vote against inclusion of physicians in the Social Security program as a result of the final tabulation of a poll of Oklahoma physicians which he recently conducted.

Of the 1207 physicians voting by questionnaire, 728 voted against participation as compared to 479 who favored the proposal. In addition to those voting for or against the program, the survey revealed that nearly 100 physicians are participating by reason of employment or business associations.



## R. H. Lynch, M.D., and OSMA Recognized



R. H. Lynch, M.D., (right) is shown receiving a resolution expressing the gratitude and appreciation of the House of Representatives of the State of Oklahoma from Representative Jim Cook, Wilburton.

A resolution taking note of the contributions and services of R. H. Lynch, M.D., Hollis, and the Oklahoma State Medical Association, expressing the gratitude and appreciation of the House of Representatives of the State of Oklahoma, was recently presented to Doctor Lynch. Presentation of the resolution was made by Representative Jim Cook, Wilburton, of the House Committee on House Administration.

The resolution read as follows:

*WHEREAS*, Doctor R. H. Lynch of Harmon County, Oklahoma, at considerable personal inconvenience and sacrifice, left his practice and his interests in his home community to minister to the health of Members of the Twenty-seventh Session of the Oklahoma Legislature; and

*WHEREAS*, His service and professional attentions to the Members of the House of Representatives during this, the Twenty-seventh Oklahoma Legislature, have been

outstanding in every respect and have reflected the highest degree of professional training and capability; and

*WHEREAS*, The Oklahoma Medical Association has made available a list of its members subject to call for treatment of the Members of the Legislature during the Twenty-seventh Session, and has otherwise voluntarily cooperated with this Legislature to an outstanding degree; and

*WHEREAS*, It is therefore appropriate that this Legislature express its gratitude and appreciation to Doctor Lynch and to the Oklahoma Medical Association for these services and courtesies.

*NOW, THEREFORE, BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE TWENTY-SEVENTH LEGISLATURE OF THE STATE OF OKLAHOMA:*

That this House, now duly assembled, does hereby express its sincere appreciation and gratitude to Doctor R. H. Lynch for his outstanding services as physician to the Membership of this House during this Legislative Session, and does hereby extend its sincere thanks to the Oklahoma Medical Association for the services and courtesies extended by that organization during this Session; and

*BE IT FURTHER RESOLVED* That properly prepared copies of this Resolution be presented to Doctor Lynch and the Oklahoma Medical Association.

Adopted by the House of Representatives the 2nd day of June, 1959.

CLINT G. LIVINGSTON,  
Speaker of the House of  
Representatives

J. HOWARD EDMONDSON,  
Governor of the State of  
Oklahoma



## Method in Our Madness?

All of us these days are constantly asked to complete forms and submit data until we are sorely tempted to dump most of it in "file 13." The industrial physician is no stranger to this problem. He realizes, perhaps more acutely than his colleagues who are engulfed in therapeutics, that careful answers to worthwhile questionnaires are often most rewarding, though not infrequently pay-dirt may be inapparent for a number of years.

Physicians associated with industries—part time or full time—have a unique opportunity and obligation to pursue long-term follow-up studies on these relatively stable populations. The effect of increasingly complex environmental factors on the human organism,

progression of various disease states under known work exposures, effectiveness of handicapped workers and socio-economic and medico-legal problems are a few of the fields in need of continued exploration. Much of the data for these studies is derived, not by the direct work of a few, but by the cooperation of many submitting accurate data via the ubiquitous questionnaire.

In the complexities of our age every physician sooner or later practices Industrial Medicine, and awareness of the far reaching importance of these problems will make the general practitioner's questionnaire and report chore easier and add vastly to our total of accurate knowledge.

Prepared by OSMA Committee on Occupational Medicine



provides therapeutic levels . . . for 24 hours . . .  
with low incidence of sensitivity reactions . . .

WHENEVER SULFAS ARE INDICATED

# KYNEX

Sulfamethoxypyridazine Lederle

0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION

LEDERLE LABORATORIES, a Division of  
AMERICAN CYANAMID COMPANY, Pearl River, New York

## Book Review

A WOMAN DOCTOR LOOKS AT LOVE AND LIFE.  
Marion Hilliard, M.D.: Doubleday and Company,  
Inc., Garden City, New York, 1957, pg. 181. Price  
\$2.95.

This is a book for women by a woman who knows them. The author, an obstetrician for over 25 years, covers the gamut of woman's emotional and sexual life, from adolescence through the child-bearing years, the menopause and old age. She deals especially effectively with two of women's worst bugaboos, fear and fatigue.

The style is breezy and easy to read. The message is clear, incisive and forthright, the result of the author's years of experience and insight.

Gynecologists and obstetricians should enjoy reading this little book and it should be required reading for their patients.—*Sylvia Onesti Richardson, M.D.*

# Auxiliary News

## National Delegates

Organizational plans for the year were completed at the thirty-sixth annual convention held in Atlantic City in June. Serving Oklahoma as delegates were: Mrs. Pat Fite, Sr., Muskogee; Mrs. Ray M. Balyeat, Mrs. Joseph W. Kelso, and Mrs. Neil W. Woodward, of Oklahoma City. Alternate delegates were: Mrs. Don H. O'Donoghue, Oklahoma City; Mrs. Thomas H. Davis, Mrs. Frank J. Nelson, and Mrs. W. A. Showman, of Tulsa. Mrs. Clifford M. Bassett was State Presidential Delegate and served as Chairman of State Delegates.

## Membership and Personal Service

Too often the American Medical Auxiliary membership roster of 80,000 is appraised with an optimistic eye. This national figure is but one-half the number of doctors who are members of A.M.A. State-wise, our Auxiliary membership is 1,150, as compared with 1,608 members of the Oklahoma State Medical Association.

Why statistics? With ever-increasing need for awareness of existing medical trends, growing pains in services at community level, and leadership needed in so many service projects, membership evaluation is obvious. Often the criticism is made that Medical Auxiliaries spread themselves "too thin"; that, instead of concentrating on large projects which receive more publicity and recognition, we tend to undertake the smaller, less glamorous service projects. The last two words explain much about Auxiliary. We *are* a service group; we extend the aims and objectives of our county, state and national medical societies. We are not a fund-raising organization. As a service group, we realize the need for personal services, whether extended as a unit or on an individual basis.

## "Organized Community Voices"

At a recent V.N.A. meeting, Mrs. Guy Fraser Harrison, vice-president of the Board of Directors, made the following statement:

"Public health practices have been directly affected by the advances made in scientific knowledge and understanding. Perhaps the most significant is the growing recognition that the community has a voice in determining what health services should be provided. There are now 'organized community voices' that are demanding better, not just adequate, health services with emphasis on personalized and comprehensive care." Physicians' wives can, and must, play an important role in this development of "organized community voices."

This role begins at home, in personal and public contacts, in the neighborhood, the P.T.A., eventually including every health service in our community; opportunity is unlimited for interested and well-informed Auxiliary members.

## Can Hours Be Counted?

We were asked last year to keep a record of the number of hours spent in community service. Few Auxiliary members did. Regularly clocked hours in hospitals or institutions can be counted; other services are difficult to "time." When one member was praised for her work in teaching swimming to polio patients, she said, "That was just something I knew I could do." One county president made an excellent report on members' activities. When congratulated, she said, "In our town people know that as doctors' wives we will head civic drives, health drives, and assume any responsibility in the community that we can. They always call on us." Simply stated—but can hours be counted?

Rapidly decreasing rural areas present increasing health problems. Here the wife of a doctor has continual responsibilities. Likewise, in crowded urban areas, health problems zoom with the population; and our services are badly needed. Regardless of the size of the community, our responsibilities constantly advance, our opportunities for service increase—so must our interest and our membership.

# Deaths

LEA A. RIELY, M.D.  
1874-1959

Lea R. Riely, M.D., who practiced medicine in Oklahoma for 52 years, died June 14, 1959 in New Canaan, Connecticut.

A native of Indiana, Doctor Riely graduated from the University of Louisville School of Medicine in 1898, coming to Oklahoma City the following year. Doctor Riely taught at the University of Oklahoma School of Medicine from 1907 until 1945. At the time of his retirement in 1951, he had practiced medicine in Oklahoma City longer than any other physician.

Doctor Riely was a member of the American Board of Internal Medicine and the American College of Physicians. In 1951, he was honored for his years of service to the medical profession when the Oklahoma State Medical Association made him an Honorary Member.

WILLIAM ARTHUR FUQUA, M.D.  
1880-1959

William Arthur Fuqua, M.D., 79-year-old Grandfield physician died in Wichita Falls, Texas on May 19, 1959.

Born in Buck Lodge, Tennessee in 1880, Doctor Fuqua moved to Altus in 1888. He graduated from Tulane University of Medicine in 1910. He had served the medical profession for 52 years in Grandfield.

Doctor Fuqua was a member of the Oklahoma State Medical Association and the American Medical Association.

ELLIS LAMB, M.D.  
1878-1959

Ellis Lamb, M.D., pioneer Clinton physician and former President of the Oklahoma State Medical Association in 1928-29, died June 14, 1959.

A native of Paragould, Arkansas, Doctor Lamb graduated from Memphis Hospital Medical College in 1905. He began his practice in Clinton in 1907 where he practiced continuously for over 52 years.

In 1958, the Oklahoma State Medical Association honored Doctor Lamb with the presentation of an Honorary Life Membership and a 50-Year Pin for his years of service to the medical profession.

Doctor Lamb was a Fellow of the American College of Physicians and a member of the American Board of Internal Medicine.

ALFRED HILLIARY HATHAWAY, M.D.  
1871-1959

Alfred Hilliary Hathaway, M.D., retired Mountain View physician, died in May, 1959.

A native of Bells, Tennessee, Doctor Hathaway received his medical degree from the University of Arkansas School of Medicine in 1905. He had practiced in Mountain View since 1908.

In addition to his membership in the Southern Medical Association, Doctor Hathaway was honored in 1949 when the Oklahoma State Medical Association presented him a membership in the 50-Year Club, commemorating half a century of medical practice. In 1951, he was again recognized by O.S.M.A. when he was awarded a Life Membership in appreciation for his years of service to the medical profession.

DENNIS S. DOWNEY, M.D.  
1878-1959

Dennis S. Downey, M.D., 80-year-old Chickasha physician, died in Oklahoma City June 28, 1959.

Born in Clinton County, Missouri, Doctor Downey graduated from the University of Louisville School of Medicine in 1908. Later that year he began his practice in Chickasha.

In 1951, Doctor Downey was honored when the Oklahoma State Medical Association presented him with a Life Membership in recognition of his contribution to the medical profession.



# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association July, 1934.

## TREATMENT OF EARLY SYPHILIS

Carl L. Brundage, M.D., Oklahoma City

I will give my method of continuous treatment for early syphilis in otherwise healthy young adults, which is similar to the method of Keidel. This was first introduced at Johns Hopkins' syphilis clinic in 1916, but did not appear in current medical literature until 1926. This method has recently been adopted by the cooperative clinical group.

Primary Syphilis: Sero-negative or sero-positive stage, regardless of sex: The first injection of neo-arsphenamine 0.3 gm., increase to 0.6 gm. on the third

and sixth day; repeat the latter dosage every five to seven days until ten injections have been given, then the alternating of bismuth salicylate in oil, grains two, intramuscularly, with the neo-arsphenamine for two weeks. Stop arsphenamine, give bismuth intramuscularly twice weekly for four weeks.

Second Course: Same as first, except increasing the course of bismuth from four to six weeks.

Third Course: Same as second, except completing the treatment with sixteen injections of bismuth twice weekly.

Secondary and Early Latent Syphilis: Preparation of the patient with mercury cussinimide, grains 1/6, intramuscularly on three successive days preceding the initial injection of neo-arsphenamine; continuation of the first, second and third course the same as the primary stage, except the addition of the iodides, grains three, three times daily for two weeks preceding each course of neo-arsphenamine.

Fourth Course: The neo-arsphenamine administered the same as the third course. Mercury succinimide, grains 1/6, intramuscularly five times weekly instead of bismuth for a period of eight weeks. Stop treatment if patient is free of all clinical manifestations of syphilis, and all serological tests have been negative during treatment. Encourage the patient as to his excellent chance of a radical cure, but insist on a yearly physical examination and blood Wassermann test.

## *Have You Heard?*

HOLICE POWELL, M.D., is joining the staff of the Buell-Myers Clinic in Okmulgee. A graduate of the University of Tennessee College of Medicine, Doctor Powell is moving to Okmulgee from Arkansas where he has been instructor in Obstetrics-Gynecology at the University of Arkansas Medical Center.

HARVEY ELKOURI, M.D., Anadarko, is moving to Chickasha where he will be associated with B. B. MCDUGAL, M.D. Doctor Elkouri graduated from the University of Oklahoma School of Medicine in 1954.

GRADY N. COKER, M.D., a native of Georgia, has joined the medical staff of the Broadway Clinic and Hospital in Shawnee. Doctor Coker graduated from the Medical College of Georgia in 1954 and spent three years in OB-GYN residency at the Medical College of Georgia Hospitals.

CHARLES A. CARMACK, M.D., formerly in practice in Okemah, is now associated with O. H. PATTERSON, M.D., in Sapulpa. Doctor Carmack is a graduate of the University of Oklahoma School of Medicine.

CEYLON S. LEWIS, JR., M.D., Tulsa, assumed the presidency of the Oklahoma State Heart Association at its annual meeting on June 6 in Oklahoma City. He succeeds WILLIAM BEST THOMPSON, M.D., Oklahoma City.

JAMES W. KELLEY, M.D., President of Tulsa County Medical Society, has been elected a member of the American Association of Plastic Surgeons, a national organization whose membership is limited to fewer than 100 specialists. Doctor Kelley appeared by invitation at the annual meeting of the group in Boston last month when he presented a paper on "Treatment of Sacrococcygeal Teratoma."

## PHYSICIAN PLACEMENT

### General Practice

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

Louis E. Harrington, M.D., Danbury, Iowa, age 37, married, graduated from Wayne University College of Medicine, Detroit, Michigan, 1949, veteran, will be available September, 1959.

John Leland Hudson, M.D., 9 Anna Sue Road, Van Buren, Arkansas, married, graduated from the University of Arkansas, 1955, veteran, available since April 7, 1959.

James Edward Lynsky, M.D., 2054 11th Street, Cuyahoga Falls, Ohio, age 33, married, graduated from Ohio State School of Medicine, 1957, veteran, will be available July 1, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Peter Pappas, Jr., M.D., 513 N. Louise Street, Atlanta, Texas, age 35, married, graduated from University of Texas, 1954, veteran, will be available July 1, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, graduated from Tulane, 1943, veteran, has an interest in teaching and wishes to get into small hospital work, availability date depends upon situation.

Gerald C. Zumwalt, M.D., 1701 Avenue P, Del Rio, Texas, age 27, married, graduated from University of Oklahoma, 1956, veteran, will be available July, 1959.

### Internal Medicine

William S. Harrison, M.D., 2623 Pittsfield Blvd., Ann Arbor, Michigan, age 31, married, graduated from University of Oklahoma School of Medicine, 1953, veteran, will be available September 1, 1959.

Doss O. Lynn, M.D., 6101 16th Street, N.W., Washington 11, D.C., age 47, married, graduated from University of Oklahoma, 1937, board certified in internal medicine and cardiology, will have completed 21 years active service September 1, 1959, prefers institutional or industrial practice, will be available after September 1, 1959.

Vanis Pennington, M.D., 1440 W. Bethune, Apt. 402, Detroit, Michigan, age 30, married, graduated from University of Tennessee, 1953, veteran, will be available December, 1959.

John H. Prodell, Jr., M.D., 115 South Mall, Willow Lawn, Richmond 30, Virginia, age 38, married, graduate of Harvard, 1947, veteran, will be available July 1, 1959.

### Locum Tenens

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for two weeks, available any time after July 1.

B. Anthony Linn, M.D., Veterans Administration Hospital, 4500 S. Lancaster Road, Dallas 16, Texas, will finish residency in Ophthalmology in July, graduate of the University of Oklahoma, 1956, licensed to practice in Oklahoma, would like to have a locum tenens for two weeks during the summer of 1959.

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

### Neurology

Kenneth C. Duncan, M.D., St. Luke's Hospital, Chicago, Illinois, age 30, married, graduated from the University of Oklahoma, 1955, veteran, will be available July, 1959.

### Obstetrics and Gynecology

Robert Lee Crews, M.D., 5040th USAF Hospital, Anchorage, Alaska, age 31, married, graduate of Vanderbilt, 1954, board eligible, will be available July, 1960, upon completion of military service.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, graduated from University of Texas, 1953, board qualified, veteran, will be available in July of 1960.



Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### Otolaryngology

Joseph E. Walthall, M.D., 1673 West Broadway, Anaheim, California, age 37, married, graduated from Duke University, 1946, board certified in Otolaryngology, veteran, will be available in approximately three months.

### Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

### Radiology

Thomas A. Lynch, M.D., 7009 N. 17th Street, Tacoma, Washington, age 39, married, graduated from University of Washington, 1950, board certified, veteran, availability date depends on circumstances of new position.

### Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

### General Surgery

Frank L. Lanuti, M.D., 215 S. Randall Avenue, Madison 5, Wisconsin, age 38, married, graduated from University of Illinois, 1953, board eligible in general surgery, veteran, will be available July 1, 1959.

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

Sam Leslie Robinson, M.D., University Medical Center, Jackson, Mississippi, age 30, married, graduated from University of Tennessee, 1953, will be available July, 1961, on completion of residency.

### Tuberculosis

Helen C. Sharp, M.D., 620½ N. Broadway, Pittsburgh, Kansas, single, graduated from University of Kansas, 1928, prefers to do industrial or student health work and is presently available.

### Urology

Wilbern W. Wersich, M.D., 1008 McIndoe, Wausau, Wisconsin, age 38, married, graduated from Northwestern University, 1951, board eligible, veteran, will be available in the near future.

## MISCELLANEOUS ADVERTISEMENTS

FOR SALE: Numerous new and used items for furnishing a medical office. Includes a consultation chair, mayo, castle sterilizer, steel clothes locker, examining table, miscellaneous instruments and laboratory glassware, X-ray apron and gloves and an oxygen regulator. Excess to my needs—in good condition. W. A. Waters, M.D., 4926 E. 21st, Tulsa.

FOR SALE: Two story frame physician's office building, and equipment Britton. Centrally air-conditioned, living quarters above and two rental apartments in rear, plus two adjacent lots. Contact Key D, The Journal, Oklahoma State Medical Association, P. O. Box 9696, Oklahoma City, Oklahoma.

TO SUB-LET: Six months beginning August, 1959, lease then available for five years. Suite 860 square feet. Frew Building. 528 N.W. 12th, William Best Thompson, M.D.

FOR SALE: Hamilton Pediatric table #9888, tan finish, grey upholstery, new condition. Worden walnut consultation room furniture, new condition. Also used equipment sufficient to equip small office. Contact W. P. Jeter, M.D., 912 S.W. 50, ME 2-1556, Oklahoma City.

WANTED: Late model Electrocardiograph. Write Key B, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

BARGAINS—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-RaY Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.

REGISTERED LABORATORY TECHNICIAN: Major oil company in progressive southwestern community of 25,000 has opening for female registered laboratory technician for complete clinical laboratory. 40-hour work week. Excellent employee benefits. Give education, experience, and salary requirements in initial letter and include photograph. Write Key F, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

FOR SALE: One 220 KV Westinghouse Deep Therapy X-ray Unit, complete with complete set of treatment cones, including intermediate therapy cone set and release treatment stretcher. Price: \$5,000. Owner may be contacted via CE 2-5501 or P.O. Box 1825, Oklahoma City, Oklahoma.



# Proceedings of the 53rd Annual Session of the House of Delegates of the Oklahoma State Medical Association, April 19, 1959

## Closing Session

The Closing Session of the 53rd Annual Session of the House of Delegates of the Oklahoma State Medical Association was called to order by the Speaker of the House, Doctor Clinton Gallaher, at 5:00 p.m. in the Pompeian Room at the Mayo Hotel in Tulsa.

The Credentials Committee reported a quorum was present.

Doctor Gallaher called for additional introduction of guests, announcements and committee reports. None were forthcoming.

The Chair then called for a report from the Constitution and By-Laws Committee. The Chairman, Doctor William T. Gill, reported that last year an amendment to the Constitution had been presented to the House of Delegates and was now ready to be acted upon. This amendment pertained to the adding, at the end of Article VIII, Section 5 of the Constitution, the following sentence:

"If the office of President-Elect becomes vacant, the President shall immediately call a special session of the House of Delegates for the purpose of filling the vacancy by election."

After reading this amendment, Doctor Gill moved the adoption of the amendment to the Constitution. The motion was seconded and carried.

Next, Doctor Gill presented an amendment to Chapter 1, Section 4.02 of the By-Laws which was as follows:

"HONORARY LIFE MEMBERS. Any physician, a member of this Association, who by reason of ill health or age shall retire from the active practice of medicine, or who has engaged in the active practice of medicine for fifty years or more, and/or whose service to humanity and his profession has been conducted with dignity and honor may be placed on the Honorary Life membership roll. Eligibility for such consideration is limited to those physicians who have been members of this Association not less than five years immediately preceding the application, and whose petition for such membership is initiated by a component society, and approved by the Council prior to that annual meeting."

Following the presentation of this amendment, Doctor Gill moved that Chapter I, Section 4.02 of the By-Laws be amended by adding the word "or" after the word "and" in line five. The motion was seconded and carried.

The next amendment to be considered by the House was to Chapter VIII, Section 3 of the By-Laws by adding the following words to the end of the sentence:

" . . . who are residing in the State of Oklahoma."

Before action was taken on this amendment, Doctor Gill explained that this section of the By-Laws pertained to the Grievance Committee which consists of the five living past presidents. He further explained that since Doctor H. M. McClure, President in 1957, had moved out of the state, there was a vacancy on this Committee. Doctor Gill then moved that Chapter VIII, Section 3 of the By-Laws be amended by replacing the period at the end of the sentence with a comma to add the words "who are residing in the State of Oklahoma." The motion was seconded and carried.

At this time, the Chair recognized Doctor E. C. Mohler, President of the Association. Doctor Mohler extended his gratitude to the House of Delegates, the Council, Committees, Committee Chairman and the entire medical Association for their help and cooperation during his term of office, and following his remarks, he received a standing ovation.

Doctor Gallaher announced that the next order of business would be the election of officers.

The first office to be filled was that of PRESIDENT-ELECT. The candidates for this office were Walter E. Brown, M.D., and Clinton Gallaher, M.D., nominated in the opening session. Doctor Gallaher called for further nominations and a motion was made that nominations cease. The motion was seconded and upon being put to vote, the motion carried, and the nominations were closed.

Doctor Gallaher announced that the vote for President-Elect would be by ballot, and requested that the tellers come forward.

The Speaker turned the Chair to J. Hoyle Carlock, M.D., to conduct the election.

Following the voting and the tabulating thereof, the Chair advised that Walter E. Brown, M.D., Tulsa, was elected to the office of President-Elect of the Oklahoma State Medical Association.

The next office to be elected was that of VICE-PRESIDENT. Charles E. Green, M.D., Lawton, was nominated in the opening session. Doctor Carlock called for further nomination. Subsequently, a motion was made that nominations cease and Doctor Green be elected by acclamation. The motion was duly seconded and carried.

Malcom E. Phelps, M.D., El Reno, was re-elected to the office of Delegate to the A.M.A. in the same manner, as was R. Q. Goodwin, M.D., for the office of Alternate Delegate to the A.M.A.

The next order of business was the election of Councilors for Districts Nos. 1, 3, 4, 7, 10, and 13. The Speaker pointed out that, as had been commented on in the opening session, since Doctor Charles Green

of Lawton had been elected Vice-President, it would be necessary for District #13 to submit another nomination in Doctor Green's place. . . . W. R. Cheatwood, M.D. of Duncan, was nominated.

The Speaker also called for an additional nomination from Councilor District No. 4, to take place of the nomination of Joe L. Duer, M.D., Woodward. Doctor John X. Blender, Cherokee, was nominated.

This completed the nomination of Councilors. The following Councilors were elected by acclamation:

DISTRICT 1—J. E. Highland, M.D., Miami  
L. B. Word, M.D., Bartlesville  
DISTRICT 3—George T. Ross, M.D., Enid  
DISTRICT 4—Walter H. Dersch, M.D., Shattuck  
John X. Blender, M.D., Cherokee  
DISTRICT 7—C. C. Young, M.D., Shawnee  
E. K. Norfleet, M.D., Bristow  
DISTRICT 10—Paul Kernek, M.D., Holdenville  
C. E. Lively, M.D., McAlester  
DISTRICT 13—J. B. Miles, M.D., Anadarko  
W. R. Cheatwood, M.D., Duncan

Following the election of officers, the Chair recognized Doctor Seth D. Revere of Chickasha who recommended that in view of the change in By-Laws that H. M. McClure, M.D., Past President, be added to the Honorary Life Membership Roll. After discussion, the House recommended that Doctor Revere put this application in writing to be submitted to the Council and House of Delegates for action at their next session.

Doctor Revere then recommended that the By-Laws be suspended for the purpose of re-introducing the name of H. M. McClure, M.D., for Honorary Life Membership. The House ruled that the By-Laws could not be suspended and, therefore, the previous recommendation would have to remain in effect.

Doctor Carlock turned the Chair to Doctor Gallaher after the completion of the election.

The next order of business was a report from the RESOLUTIONS COMMITTEE. Doctor Gallaher called on Doctor C. M. Hodgson, Kingfisher, Chairman of the Committee for this report.

As the first Resolution, Doctor Hodgson read the following, which had been recommended to the Resolutions Committee by the delegates from the Garfield-Kingfisher County Medical Society and had been prepared by the Resolutions Committee.

#### **Resolution**

WHEREAS, the Garfield-Kingfisher County Medical Society recognizes the contributions to the Oklahoma State Medical Association and his community that have been given by Henry T. Russell, M.D., Enid, and,

WHEREAS, Doctor Russell because of personal considerations finds it necessary to resign from the Council of the Oklahoma State Medical Association,

NOW, THEREFORE, BE IT RESOLVED, That the

Oklahoma State Medical Association, in convention assembled, expresses to Doctor Henry T. Russell its appreciation for the efforts, time, and abilities that he has given to this profession while serving as a member of the Council of the Oklahoma State Medical Association.

GARFIELD-KINGFISHER  
COUNTY MEDICAL SOCIETY

Doctor Hodgson reported that the Resolutions Committee recommended the adoption of this Resolution, and it was so moved by Doctor Hodgson. The motion was duly seconded and carried.

The next Resolution to be presented was prepared by the Resolutions Committee in regard to HB No. 820:

#### **Resolution**

WHEREAS, the Oklahoma State Medical Association has had brought to its attention HB 820 of the Oklahoma Legislature, introduced by Representative Forsythe of Tulsa, which would establish a Medical Examiners System, contra-wise to the Coroner's System.

NOW, THEREFORE, BE IT RESOLVED, that the House of Delegates of the Oklahoma State Medical Association, in convention assembled on the 19th day of April, herewith endorses and supports the intents of the Legislator.

OKLAHOMA STATE MEDICAL ASSOCIATION

Doctor Hodgson moved the adoption of this Resolution. The motion was duly seconded and carried.

Next on the agenda was the Resolution submitted by the Carter County Medical Society, extending Associate Membership in the Oklahoma State Medical Association to Doctor Thomas M. McCoy, Ph.D., Director of The Noble Foundation of Ardmore:

#### **Resolution**

BE IT RESOLVED THAT:

WHEREAS, Doctor Thomas M. McCoy, Ph.D., Director of the Noble Foundation of Ardmore, Oklahoma, and,

WHEREAS, Doctor McCoy has made such momentous contributions in the field of cancer research and established himself and The Noble Foundation as a source of authority in the field of nutrition:

NOW, THEREFORE, BE IT RESOLVED, that the Oklahoma State Medical Association recognizes the contribution Doctor McCoy has made in the field of cancer research and herewith extends to him an Associate Membership in the Oklahoma State Medical Association; and,

BE IT FURTHER RESOLVED, that the Oklahoma State Medical Association recognizes and compliments



The Noble Foundation for the outstanding work being done toward Cancer Research in the field of nutrition, to the end that its research will add materially to the ultimate eradication of cancer.

#### CARTER COUNTY MEDICAL SOCIETY

Doctor Hodgson moved the adoption of this Resolution. The motion was duly seconded and carried.

---

The next Resolution to be considered was submitted by the Oklahoma Society of Anesthesiologists, as follows:

#### Resolution

WHEREAS, the development of a service plan of insurance payments gives the insuring group a chance to set fees for the medical profession, and

WHEREAS, this allows pressure to be exerted by lay organizations on the medical profession, now

BE IT RESOLVED, that the Oklahoma Society of Anesthesiologists go on record as opposing.

#### OKLAHOMA SOCIETY OF ANESTHESIOLOGISTS

Doctor Hodgson reported that the Resolutions Committee had considered the Resolution of the Oklahoma Society of Anesthesiologists with reference to a service-type plan of insurance.

Inasmuch as this theory of care has been embodied in the report of the Committee on Insurance for Senior Citizens, the Resolutions Committee feels that it should defer action on this Resolution until such time as the House of Delegates either rejects or accepts the report of the Committee on Insurance for Senior Citizens.

Doctor Hodgson moved the adoption of the deferment of a decision on this Resolution. The motion was duly seconded and carried.

---

The last Resolution to be considered was submitted by the East Central County Medical Society with regard to the A.M.A. dues, as follows:

#### Resolution

WHEREAS, At the present time only nine component state medical Associations in the United States, including the Oklahoma State Medical Association, have a mandatory requirement of membership in the American Medical Association for their members, and,

WHEREAS, In the forty other states membership in the American Medical Association and payment of

the annual dues therein is optional with the individual member, and,

WHEREAS, A sizeable proportion of physicians in the forty states elect not to belong to the American Medical Association, and,

WHEREAS, The failure of these forty Associations to assume their just share of the obligations and responsibilities of the national organization places a disproportionate burden upon the remaining nine associations with compulsory A.M.A. membership requirements, and

WHEREAS, No effective effort to correct this situation has been made by the American Medical Association,

NOW, THEREFORE, BE IT RESOLVED, That the Council recommend to the House of Delegates of the Oklahoma State Medical Association that effective with the calendar year of 1960, membership in the American Medical Association shall be optional with the individual physician member, and

BE IT FURTHER RESOLVED, That the Council initiate the necessary amendment to the By-Laws to repeal the compulsory A.M.A. membership requirement, and

BE IT FURTHER RESOLVED, That such action be taken as a protest to the failure of the forty component state associations to assume their due obligations to the American Medical Association, to encourage a uniform solution to this inequitable and lamentable situation, and that in no way be it considered a reflection upon the present progressive program being pursued by the American Medical Association, its officers and employees.

Enacted at regular meeting East Central Oklahoma Medical Society, December 10, 1958.

(Signed) G. L. BERKENBILE, M.D., Secretary

Doctor Hodgson reported that the Resolutions Committee rejects this Resolution for the reason that they believe it is not in the best interest of organized medicine to create further controversy within the organization.

Doctor Hodgson moved the adoption of this rejection. The motion was duly seconded and carried.

---

Doctor Gallaher called for any other announcements or business. There was no further business.

The new officers were asked to come to the front for introduction.

The meeting of the House of Delegates was declared adjourned at 6:05 p.m.

REPORTED BY:

MARGARET BARTON  
MARY MARGARET BOWEN



**A NEW USE  
FOR VESPRIN**

**FROM:  
ANXIETY  
AND TENSION  
TO: EMOTIONAL  
STABILITY**

# VESPRIN

SQUIBB TRIFLUPROMAZINE HYDROCHLORIDE

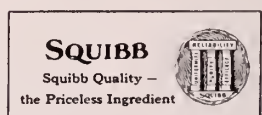
**made the difference**  
in anxiety and tension states / psychomotor agitation /  
phobic reactions / obsessive reactions / senile agitation  
/ agitated depression / emotional stress associated with a  
wide variety of physical conditions

In the patient with anxiety and tension symptoms — Vesprin calms him down without slowing him up...and does not interfere with his working capacity. Vesprin permits tranquilization *without* oversedation, lethargy, apathy or loss of mental clarity.<sup>4</sup>

And Vesprin exhibits an improved therapeutic ratio — enhanced efficacy with a low incidence of side effects; no reported hypotension, extrapyramidal symptoms, blood dyscrasia or jaundice in patients treated for anxiety and tension.<sup>1,2,3</sup>

**dosage:** for "round-the-clock" control — 10 mg. to 25 mg., b.i.d.; for "once-a-day" use — 25 mg. once a day, appropriately scheduled, for therapy or prevention. **supply:** Oral Tablets, 10, 25 and 50 mg., press-coated, bottles of 50 and 500; Emulsion (Vesprin Base) — 30 cc. dropper bottles and 120 cc. bottles (10 mg./cc.). **references:** 1. Stone, H.H.: Monographs on Therapy 3:1 (May) 1958. 2. Reeves, J.E. Postgrad. Med. 24:687 (Dec.) 1958. 3. Burstein, F.: Clinical Research Notes 2:3, 1959. 4. Kris, E.: Clinical Research Notes 2:1, 1959. <sup>1</sup>VESPRIN<sup>®</sup> is a Squibb Trademark

**Vesprin—the tranquilizer that fills a need in every major area of medical practice**



# Editorials

## News Item

The Council and the House of Delegates of the Oklahoma State Medical Association on successive days voted overwhelmingly against the ad hoc committee's report which embodied a service contract for medically indigent people over 65. There was no apparent willingness to compromise over irritations that might permit some kind of solution consistent with the American Medical Association's request. The members of both bodies who spoke seemed unconcerned about the philosophic implications of the April meetings which led to the committee's work—only about those facets of the plan which affected each adversely. The idea of a service contract which in April the committee had been asked to work on was now almost unanimously abhorrent.

## Editorial Comment

Mr. Lincoln believed that people anywhere have a right to revolutionize when it seems wise and proper for their own good. The people of the United States have done this all along, peacefully, through constitutional amendments, through laws and through the right of eminent domain.

When I was a boy in Tennessee, the roads in our county were a part of private enterprise. There was a toll gate every five miles and we paid a fee at each gate before the gate keeper would raise the gate. The people decided that they, through the state could do a better job and the state took over the road business. This is a little revolution against private enterprise. Our history is replete with them. The people did another thing to protect themselves, another revolution against private enterprise; they fixed it so that no combine could exploit them by controlling prices with the Sherman Anti-Trust law; and where it was necessary for a monopoly to exist such as utility services they established commissions to set rates which would allow legitimate profits but no more. All through our history the people through their government have taken

the steps they have thought necessary to promote the interest of the people as a whole by little revolutions against inadequacies of and exploitations by private enterprise. We may question the validity and wisdom of some of the things they have done, but I doubt if we can question their right to do them. In many instances the revolution has involved attacks on services that were essential to all the people. People no longer have the freedom to dump garbage and refuse where they please. Outdoor privies are not allowed in urban communities. Even litter-bugs are subject to fine. Little by little individual freedom of action and whim has had to give way to systems designed for the good of all the people. This is the history of social and economic development of America.

Now comes the matter of health. The physician has the freedom to use his judgment, good or bad, with his patient—the only restriction the people have placed on him is that he must have a license which means that he has to demonstrate certain qualifications. The license is archaically broad and permits him to do anything in the way of treatment that he thinks he is man enough to do—the only limitation is a liability to damages if something goes wrong and he cannot demonstrate that he used the knowledge and skill equal to that used by the other physicians in his community. The physicians, medicine, medical education and the hospitals have done much to offset this archaic license system, otherwise the system would have been done away with as special skills became more and more necessary for adequate medical care; but this is a very vulnerable part of our structure to revolution, and it appears that the United Mine Workers and perhaps others have already started one. Freedom of unlimited choice is being examined with a good deal of hard scrutiny, and is in many areas of third party medicine not acceptable.

The health and medical care of the indigent and the medically indigent are of con-

cern to a good many people besides those who fit this classification. This area is wide open for a revolution and when it comes it will be the people who are responsible not the politicians and the bureaucrats however much we may scream that it is. To oppose as bitterly as it apparently does the socialization of medicine and yet be willing to give nothing to prove that it is neither necessary nor desirable is a paradox existing in the minds of the House of Delegates that cannot be fathomed by any reasoning that would result in a charitable conclusion. *The question is not the creation of a stop-gap to prevent the passage of Forand-type legislation but can we or can we not embrace all the people under our private enterprise system of medical care.* Can we of our own volition devise a tool to prove that it can be done. It appears that we either cannot or will not.

It is a pity that those who hate government interference most should be the ones who will make the people find it necessary, when all they need do is agree to give up predatory privileges which very few would exercise anyway. If they would agree to give up this privilege then arbitration for the adjustment of inequities could proceed and could be continuous, for it would be we and not government who would be forging the tool for the assured care of the medically indigent over 65 under the best system of medical care in the world. To retain this privilege for the avaricious few we wash our hands of the whole affair and in effect tell the people that our system cannot assure access to good medical care to this marginal group. We would like for them to be covered by some sort of indemnity insurance but we will not promise them that their needs for physicians fees will in this way be met but it should help.—*B.H.N.*

## **A Sleepy Giant?**

Recent Forand Bill Hearings before the House Ways and Means Committee provided Oklahoma doctors with an opportunity to dispell the theory that medicine is but a voice in the wilderness when it comes to politics.

The OSMA's National Legislative Com-

mittee successfully tested its muscles when it marshalled over five hundred protests to this measure. Oklahoma Congressmen not only heard from physicians, but also from businessmen, civic leaders and other professional people.

The late-session public hearings were but a feint on the part of those who are ambitious to regiment health care. Physicians should not let their fine showing lull them into a false sense of security—the real test on this legislation will likely come in 1960—or surely in 1961!

At the same time, the Oklahoma committee should be proud of the enthusiasm it recently generated, both from within and without the profession. A powerful potential has been rekindled from men who have too often underestimated their own bargaining power.

Oklahoma medicine is a sleepy if not sleeping giant that, when stimulated, can do much to mold sound public opinion. It is incumbent upon each of us to take cognizance of the world around us and to let ourselves be heard on legislative matters.

The Forand Bill is not only a poor palliative for the indigent elderly, but also represents another example of wasteful sniping at the taxpayer's pocketbook. A continuing battle must be waged against this legislation and the taxpayers must understand the foreboding implications which are deceptively buried under promises of a "blue sky" medical care program. We must assume a leadership role on behalf of our senior citizens and help them meet the challenge of aging through the free enterprise mechanism.

Our National Legislative Committee will continue to watch Forand's maneuverings and will be calling upon you to help them build even more effective legislative machinery. The following men of this committee merit your continued cooperation:

Worth N. Gross, M.D., 1st Congressional District; Tom S. Gafford, Jr., M.D., 2nd Congressional District; J. Hoyle Carlock, M.D., 3rd Congressional District; Clint Galaher, M.D., 4th Congressional District; William N. Harsha, M.D., 5th Congressional District; and Paul B. Lingenfelter, M. D., 6th Congressional District.—*J. R. Stacy*



# Scientific Articles

## A Ten-Year Experience With Caesarean Section in a 50-Bed Hospital

**DURING THE PAST** twenty years Caesarean Section has become a commonplace operation and one now used in preference to an anticipated difficult vaginal delivery. Whether this is proper or not is the province of the teacher rather than the present writer.

The experience over ten years in a fifty-bed general hospital, serving an area of thirty thousand population, should throw some light on what is being done outside the larger centers and teaching institutions. If the experience here is good, then those people who trained us have not worked in vain, and the lay public should have no doubts as to the quality of operative obstetrics they are receiving. Furthermore, if the results are satisfactory, more younger physicians should be happy to settle in such communities because what they have been taught is being carried out in the smaller communities of our State.

We, therefore, present this review to show our community as an example of medicine practiced outside the metropolitan areas of our State. We are certain other small institutions could present equally as good, if not better, figures than ours.

**BEVERLY C. CHATHAM, M.D.**

Beverly C. Chatham, M.D., graduated from Vanderbilt University School of Medicine in 1943. He is certified by the American Board of Obstetrics and Gynecology.

Doctor Chatham is a member of the Central Association of Obstetrics and Gynecology, the American College of Obstetrics and Gynecology and the American College of Surgeons.

Table One shows the incidence, by year, of sections along with the maternal and fetal mortality. These procedures were done by four different surgeons. The author did slightly less than 50% of them.

TABLE ONE					
Year	No. Deliveries	No. of Sections	% Sections	Maternal Death	Fetal Death
1949	260	8	3.0	0	1
1951	256	8	3.1	0	0
1950	244	11	4.5	0	0
1952	279	5	1.7	0	1
1953	257	7	3.1	0	0
1954	282	6	2.1	0	0
1955	329	9	2.7	0	0
1956	338	9	0.8	0	0
1957	369	7	1.8	0	0
1958	309	7	2.5	0	0
Total	2,923	Total 72	Avg. 2.5%	Total 0	Total 2

There were no maternal deaths; in fact, there was no mother who at any time caused us any great degree of worry as to her outcome. Two mothers left the hospital without babies; (1) a markedly premature infant from a case of placenta praevia centralis, (2) a stillborn infant from a case of massive abruption of the placenta (the infant was dead before the section was started).

Table Two shows the maternal morbidity and the number of patients each year receiving and not receiving antibiotics during puerperium. These figures are a revealing set because they show that section carries a very high morbidity rate, albeit a zero mortality rate. If our antibiotics become less and less effective we again may be doing difficult vaginal deliveries in preference to Caesarean Sections.

TABLE TWO

Year	Maternal Morbidity	Antibiotics Used	No Antibiotics Used
1949	1 in 8 cases	5	3
1950	2 in 11 "	7	4
1951	2 in 8 "	7	1
1952	2 in 5 "	5	0
1953	0 in 3 "	6	2
1954	3 in 6 "	5	3
1955	0 in 9 "	5	4
1956	0 in 3 "	0	3
1957	0 in 7 "	1	6
1958	2 in 7 "	4	3
Total	12 in 72 = 16.6%	43 = 59.3%	29 = 40.2%

Before reviewing these figures, I felt we had been brave in our use of antibiotics (this covers both sulfonamides as well as antibiotics), but I found to my dissatisfaction that we used these drugs very liberally, and I now wonder if they were as necessary as we thought at the time. This much can, however, be said—we did not start anyone on these drugs prophylactically—they were all given on indication.

Table Three shows the type of section done and the number of patients receiving blood transfusions.

TABLE THREE

Year	Classical	Low Segment	Transfusion
1949	2	6	2
1950	0	11	1
1951	0	8	2
1952	0	5	4
1953	2	5	2
1954	1	5	1
1955	2	7	3
1956	1	2	0
1957	0	7	2
1958	1	6	2
Total	9	63	19 = 26.3%

The Classical Sections were done for two reasons: (1) in the presence of placenta praevia and (2) when fast action was indicated—such as an abruption of the placenta or in fetal distress. Transfusions were given only on these indications:

(1) Bleeding of severe nature with shock

(2) Hemoglobin below 10 grams per cent  
No transfusions were used as "tonics," and there were no transfusion reactions other than slight "pyrogenic reactions."

Table Four shows the type of anesthetic used.

TABLE FOUR

Year	Local	Spinal	General
1949	2	6	0
1950	0	11	0
1951	0	8	0
1952	3	2	0
1953	1	7	0
1954	1	5	0
1955	0	9	0
1956	1	2	0
1957	1	6	0
1958	1	6	0
Total	10	62	0

We feel very strongly about not using general anesthesia. So strong is our feeling that we will not do a section under general anesthesia where we are expecting a live baby. We have had no more serious untoward reactions from spinal than headache. We have had no problems with local anesthesia. In using either local or spinal anesthesia, pentothal is added after the cord has been clamped. This makes for an easier closure following emptying and suturing of the uterus.

Table Five shows the incidence of first and repeat sections.

TABLE FIVE		
Year	First	Repeat
1949	2	6
1950	6	5
1951	5	3
1952	2	3
1953	5	3
1954	4	2
1955	3	6
1956	0	3
1957	1	6
1958	2	5
	—	—
Total	30	42

Our feeling has been and is that "once a section, always a section" is the best for our small hospital. We believe people can be delivered vaginally after section if facilities are immediately available for section during the trial labor. Our emergency surgical set-up requires about an hour's notice. We believe an hour might mean the difference between a live baby or a live mother if the uterus should rupture during this trial of labor.

The reasons that we did our first sections reflect clearly our philosophy about Caesarean Section:

- 1949: (1) Placenta Praevia  
 (2) Cephalo - pelvic disproportion — trial labor
- 1950: (1) Diabetic Mother  
 (2) Abruptio of Placenta  
 (3) Cephalo - pelvic disproportion — first delivery vaginal with spastic child  
 (4) Cephalo - pelvic disproportion — trial labor  
 (5) Cephalo - pelvic disproportion — difficult first delivery, stillborn infant  
 (6) Placenta praevia
- 1951: (1) Uterine inertia  
 (2) Difficult first delivery — stillborn child  
 (3) Prolapse cord, breech, 5 cms. dilatation  
 (4) Placenta praevia  
 (5) Age 43, breech, first pregnancy
- 1952: (1) Severe preeclampsic; unresponsive to treatment  
 (2) Severe abruptio of the Placenta

- 1953: (1) Cephalo-pelvic disproportion; difficult first delivery, stillborn child  
 (2) Severe preeclampsia; failed medical induction  
 (3) "Past 40"—no children living  
 (4) Prolapse of cord—not in labor  
 (5) Abruptio of Placenta
- 1954: (1) Cephalo-pelvic disproportion; trial labor  
 (2) Cephalo-pelvic disproportion; trial labor  
 (3) Prolapse cord; not in labor  
 (4) Uterine inertia
- 1955: (1) Placenta Praevia  
 (2) Questionable disproportion; questionable inertia  
 (3) Diabetic Mother
- 1956: No primary sections
- 1957: (1) Transverse lie; back over inlet
- 1958: (1) Placenta Praevia and abruptio; spastic infant  
 (2) Past 40—first pregnancy, schizophrana, antropoid pelvis

In closing, a few interesting sidelights were found: All patients were white (we do deliver Negro women, however). Three hysterectomies were done:

- (A) One for fibroids  
 (B) Two for ruptured uteri unsuitable for suture

Three associated appendectomies — no unusual course postoperatively

Thirty had tubal ligations (Pomeroy)

Shortest stay—5 days

Longest stay—13 days

Average stay—8.4 days

Youngest patient—age 17

Oldest patient—age 43

Average age—27.8 years

Complications:

Most frequent—urinary tract infections

Most serious—ileus requiring suction

No wound disruptions

No emboli

No thrombophlebitis

### Summary

A ten-year review of sections done in a small hospital shows that our results are comparable to those in larger centers and that the indications for sections are about the same wherever medicine is practiced.

620 Choctaw, Chickasha, Oklahoma



# PLEURAL EFFUSION:

## A Study of the Literature

### Introduction

PLEURAL EFFUSION is a not uncommon clinical condition which may often be overlooked but, even when discovered, frequently poses difficult problems as to the diagnosis of the underlying cause and its subsequent therapy. Also, there are many aspects which do not seem to be widely known or fully appreciated. It is therefore hoped that a study of the literature might serve as a review, in depth, of the current knowledge and thinking concerning pleural effusions and bring more light upon these less well-known aspects.

The "pleural space" is only a "potential" space with normal contents of only a few cubic centimeters of fluid necessary for lubricating purposes. This fluid is formed by transudation and is removed via the lymphatics. Therefore, an obstruction to lymphatic drainage as well as an increased production of fluid may cause an abnormal amount of fluid. Anything which might cause edema in other parts of the body may cause effusion into the pleural space.<sup>1</sup> The fluid in cases of pleural effusion is not "static" but there is a constant turnover which, when measured by deuterium oxide or T-1824 dye methods averages about 45%/hour.<sup>2</sup>

The pleura is a membrane enveloping the entire lung and interior surface of that part of the thorax which is adjacent to the lungs. Throughout this great area the pleura, itself, is only *one cell thick*. Therefore, any con-

### JAMES R. LOWELL, M.D.

A graduate of the University of Oklahoma School of Medicine in 1953, James R. Lowell, M.D., limits his practice to his specialty of Internal Medicine. In addition to his private practice, he is an Instructor in Medicine at his school of graduation.

Doctor Lowell is a member of the American Trudeau Society.

dition causing pleural effusion—or, for that matter, affecting the pleura (except mesothelioma)—must involve structures other than the pleura. A severe pleurisy may be present but it is associated with some pneumonitis. Metastatic carcinoma may produce an effusion but it inevitably also involves some lung or subpleural tissue. Tubercle bacilli may be present in the pleural space and cause considerable exudation but they originated in the lung or other areas such as a paravertebral abscess. Therefore, it is imperative to always consider pleural effusion as a manifestation of disease which is *not* exclusively in the pleura and *not as a disease entity*.

### Etiology

There are many causes of pleural effusion but the exact number would be dependent upon how one would want to classify disease entities—a formidable task not undertaken here. Reference to Table I will show many of the more common causes which have occurred in five series of cases studied in recent years. From this Table one can

STUDIES OF ETIOLOGIES OF PLEURAL EFFUSIONS					
	Tinney and Olsen <sup>3</sup>	Engelhardt and Wilson <sup>4</sup>	Sahn et al <sup>5</sup>	Leuallen and Carr <sup>6</sup>	Myerson <sup>7</sup>
Neoplasms	169	10	47	229	41
Carcinoma					
Bronchogenic	47		25		25
Breast	42		9		
Unknown primary	14		4		
Ovary	12		1		
Colon and Rectum	4		3		2
Kidney	6		1		
Stomach	5				
Others	11		2		7
Lymphoma and Leukemia	28		2		7
Infections	40	53	9	43	27
Pneumonia	16	32	7		12
Tuberculosis	24	21	1		10
Empyema			1		5
Congestive Failure	42	23	36	44	18
Miscellaneous	23	5	11	45	13
Cirrhosis and Hepatitis	8	1	3	9	2
Pulmonary infarction			2	13	2
Renal disease	7	1	1	1	3
Trauma			2	5	1
Subphrenic abscess	1		1	4	1
Lupus erythematosus	1			4	1
Polyserositis				5	1
Others	6	3	2	4	2
Undetermined	170	57		75	1
Totals	444	148	103	436	100

TABLE 1

also obtain a general—but certainly not exact—incidence of the various causes of pleural effusion. This is because no two studies have accepted the same criteria for case selection, or had very similar case material. Tinney and Olsen's<sup>3</sup> study from the Mayo Clinic excluded cases due to surgery, trauma or of undetermined etiology. The material they present concerns 274 *diagnosed* cases from a total of 444 cases. They state that in 170 (38%) of the 444 cases a definite diagnosis could not be made. Engelhardt and Wilson's<sup>4</sup> cases were "non-surgical" cases from New Orleans' Charity Hospital. Sahn et al's,<sup>5</sup> series came from institutions not admitting known cases of tuberculosis

and all of the patients were past 50 years of age. These factors make carcinoma appear to be a more common cause of pleural effusion than it actually is. Leuallen and Carr's<sup>6</sup> cases are from the Mayo Clinic, but were collected during the 1950-'52 period—significantly later than Tinney and Olsen's. They excluded cases secondary to surgical procedures. Myerson's cases<sup>7</sup> were all men at a Veteran's Administration hospital.

From studying the above five series of cases, and keeping in mind the case selection factors, it will be seen that *neoplasms*, particularly carcinomas, are the cause of almost half the cases of pleural effusion. The remaining causes are in three roughly

equal groups classified as *infectious*, *congestive failure* and *miscellaneous*. Cirrhosis, renal diseases and pulmonary infarction are among the more common causes in the large miscellaneous group. In Table II are listed almost all the causes of pleural effusions. These are listed as near in order of decreasing frequency as is consistent with an outline form of presentation.

TABLE II  
OUTLINE OF ETIOLOGIES OF PLEURAL EFFUSIONS

- I. Neoplasms
  - A. Primary
    1. Bronchogenic carcinoma
    2. Lymphomas and leukemias
    3. Mediastinal tumors
    4. Chest wall tumors
    5. Mesotheliomas
  - B. Metastatic (especially breast and ovary)
- II. Infections
  - A. Tuberculosis
    1. Pulmonary tuberculosis
      - a. Without obvious pulmonary tuberculosis
      - b. With obvious pulmonary tuberculosis
    2. Tuberculous spondylitis
    3. Tuberculous lymphadenitis
  - B. Bacterial (non-tuberculous)

1. Pneumonia	7. Brucellosis
2. Pulmonary abscess	8. Anthrax
3. Infected pulmonary cyst	9. Syphilis
4. Subphrenic abscess	10. Typhoid fever
5. Bronchiectasis	11. Scarlet fever
6. Tularemia	
  - C. Mycotic
    1. Coccidioidomycosis
    2. Actinomycosis
    3. Blastomycosis
    4. Torulosis
  - D. Viral and Rickettsial
    1. Atypical pneumonia
    2. Psittacosis
    3. Q fever
    4. Others
  - E. Protozoal
    1. Amebiasis
    2. Trichinosis
    3. Paragonimiasis
    4. Echinococcosis
- III. Cardiovascular
  - A. Congestive heart failure
  - B. Pulmonary embolism
  - C. Pulmonary edema
  - D. Superior vena cava obstruction
  - E. Pericardiopleuritis (including "Post-myocardial-infarction syndrome")
- IV. Miscellaneous
  - A. Cirrhosis
  - B. Nephritides and nephroses
  - C. Fluid overloading
  - D. Pneumothorax

- E. Trauma
- F. Thoracotomy
- G. Postpartum
- H. Biliary surgery
- I. Rheumatic fever
- J. Perforated esophagus
- K. Pancreatitis
- L. Lupus erythematosus
- M. Anemia
- N. Polyarteritis nodosa
- O. Rheumatoid arthritis
- P. Endometriosis
- Q. Wet beriberi
- R. Porphyria
- S. Acute interstitial pulmonary fibrosis
- T. Scurvy
- U. Meig's syndrome
- V. Loeffler's syndrome

### Diagnosis

The clinical presence of pleural effusion almost always signifies a condition of great medical importance, even potentially fatal. Never should a patient be dismissed with the diagnosis of "just pleurisy." Early diagnosis may be life-saving, prevent or reduce a long term illness, prevent thoracotomy, eliminate much mental anguish or considerably reduce discomfort. In spite of a wide range of diagnostic procedures, it may be impossible to diagnose some cases but even the majority of these "idiopathic" cases should have a careful program of handling—as will be seen later.

### Symptoms and Signs

The onset of pleural effusion may be very insidious with a gradually increasing shortness of breath being the only complaint. However, frequently there is a fibrinous pleurisy accompanied by pleuritic pain and the serofibrinous pleurisy (pleural effusion) follows within a short time. As the effusion develops the pleuritic pain rapidly subsides.

Pleuritic *pain* is a severe, sharp, or cutting pain which increases with inspiration and gradually subsides with expiration. Holding the breath in expiration will alleviate the pain. Usually the afflicted individual can, with concentration, move a normal tidal volume of air if he begins from the maximal expiratory position. Attempting to move an equal amount of air from the usual resting expiratory level causes so much pain that his breathing is "cut off." Coughing and sneezing are suppressed as much as possible due to the excruciating pain they cause.



Only the parietal pleura is sensitive to pain. The pain is generally felt over the area of involvement and sometimes distally along the courses of the intercostal nerves involved. This sometimes causes the simulation of abdominal diseases in pleurisy. Rarely the pain may be felt only in the abdomen.

The periphery of the diaphragm is innervated by intercostal nerves whereas the central portion is supplied by the phrenic nerve. Therefore, pleurisy over the peripheral part of the diaphragm will be felt in a corresponding region in the lower thorax whereas pleurisy over the central part will be referred to the shoulder of the same side. Simultaneous pain at the lower thorax and ipsilateral shoulder is almost pathognomonic of diaphragmatic involvement. It has been previously mentioned, but should be further stressed, that in generalized pleurisy the pain is much worse at the lower thorax than the upper.

*Fever* is usually present at time of pleuritic pain and during the earlier stages of pleural effusion it may be present, depending upon the cause. A temperature of 100°F., or greater, associated with pleural effusion was found in only three of 24 neoplastic cases but in 17 of 24 tuberculous cases.<sup>6</sup> Fever is to be expected when the effusion is associated with pneumonia or when empyema is present.

*Dyspnea* may be the only symptom of pleural effusion. If there is considerable pleuritic pain the dyspnea may be due, at least in part, to a self-imposed limitation of respiratory excursions. Dyspnea more often is due to "restriction" of the lungs and is, therefore, somewhat related to the volume of fluid. However, relief from draining relatively small amounts of fluid is often gratifying even in patients with good underlying pulmonary function.

In patients with large pleural effusions a persistent, essentially nonproductive *cough* is often noticed. This is probably due to the large effusion bringing bronchial walls into apposition and initiating the cough reflex.

*Physical examination* can best be discussed by the classical method of division into inspection, palpation, percussion and auscultation.

1. *Inspection.* The patient with severe pleuritic pain will usually be seen lying on the affected side and if there is any tendency to cough or sneeze this will be stifled. There is splinting of the affected side with decreased expansion. With the advent of effusion there may still be some limitation of motion of the chest. Instead of appearing concave the intercostal spaces may be flattened or even bulging and, therefore, Litten's sign of diaphragmatic excursion will not be present. If the effusion is large the patient may prefer to sit up to relieve his dyspnea. The cause of the pleural effusion may be indicated by dilated veins on the chest and abdomen due to superior vena cava obstruction, a gibbus of tuberculous spondylitis or clubbed fingers, due to bronchiectasis, empyema or carcinoma.

2. *Palpation.* The outstanding finding upon palpation is the decrease of tactile fremitus on the involved side. The observation of decreased chest expansion on the involved side may be confirmed by palpation. Tracheal deviation away from the involved side is evidence of pleural effusion of rather large amounts. If the effusion is on the left the cardiac point of maximum impulse may be diminished or absent. A right-sided effusion may displace it to the left.

3. *Percussion.* Flatness to percussion on the involved side of the chest at its most basal portion with gradual change to dullness as one progresses upward is one of the characteristic findings of pleural effusion. However, it must be realized that no significant change in resonance occurs unless at least several hundred cubic centimeters of fluid are present. Shifting dullness is a valuable confirmatory sign but is not always present. Percussion may also be used in demonstrating mediastinal shift away from the side of effusion—an indirect sign of effusion which is often not demonstrable. Grocco's triangle of dullness adjacent to the midline on the contralateral, posterior base is of limited value since it is also present in consolidation and atelectasis.<sup>9</sup> If the effusion is on the left the semilunar space of Traube is diminished or disappears.

Just above the level of dullness an area of hyper-resonance or even tympany may be elicited. This is "Skodaic resonance" an

may also be found above a consolidated pneumonia.<sup>9</sup>

4. *Auscultation.* A friction rub synchronous with respiration may be considered pathognomonic of pleurisy. The outstanding auscultatory finding of pleural effusion is decrease or absence of breath sounds over the fluid. However, breath sounds may be increased when there is underlying consolidation or adhesions.<sup>1</sup> Vocal fremitus is also decreased but this may occur with atelectasis and pleural thickening. If pneumohydrothorax is present the Hippocratic succussion splash may be elicited. Comparable to the Skodaic resonance above

the fluid is the presence of egophony and tubular breath sounds.

Pleural thickening is the most difficult condition to differentiate from pleural effusion by means of physical examination. Those findings of value in doing so are asterisked in Table III.

Clinical Features

Certain clinical features of some of the causes of pleural effusion are worthy of special consideration.

The largest pleural effusions are usually found to be due to malignancies and they often recur rapidly after thoracentesis. Ill health prior to the "final illness" (with effusion) was found to be present in 19 of 24 cases of malignancies in one study whereas it was present in only one of 24 of those which were tuberculous.<sup>8</sup> True pleuritic pain was found to be uncommon or of short duration in malignancies although "a particularly unpleasant boring pain which goes on, most significantly even after the formation of a large effusion" might be present. Clubbing of the fingers suggests empyema, carcinoma<sup>10</sup> or bronchiectasis. Age is an important consideration since most malignancies producing pleural effusions are relatively uncommon before the age of 40. On the contrary, frankly tuberculous and "idiopathic" pleural effusions have a peak incidence at about 20 years.<sup>11, 12</sup>

The effusion associated with congestive heart failure rarely is present without other clinical evidence of the congestive failure. At least three studies have shown that such effusions have a predilection for the right hemithorax.<sup>3, 7, 13</sup> The results of these studies are seen in Table IV. Peak and Levine<sup>13</sup> also found: "Rheumatic heart disease and auricular fibrillation appeared to augment the influences determining a right hydrothorax, while pure left heart failure tended to mitigate these to a limited degree."

TABLE IV  
PREDOMINANCE OF SIDE OF EFFUSION IN  
CONGESTIVE HEART FAILURE

Authors	Right Left Bilateral					
Tinney & Olsen <sup>3</sup>	28	13	1			
Myerson <sup>7</sup>	12	5	1			
(noncardiac effusions)	(41)	(39)	(2)			
Peak & Levine <sup>13</sup>						
thoracentesis	55	8	12	R > L	R = L	L > R
x-ray examination	20	4	52	9	14	5
postmortem	6	5	99	85	3	11

TABLE III  
OUTLINE OF PHYSICAL FINDINGS

- I. Inspection
  - A. Evidence of pleuritic pain
    - 1. Grunting respiration
    - 2. Suppression of cough and sneeze
    - 3. Splinting of affected side
    - 4. Lies on affected side
  - B. Evidence of pleural effusion
    - 1. Limited chest expansion
    - 2. Flattening or protrusion of intercostal spaces—Litten's sign absent
  - C. Evidence of possible etiology of pleural effusion
    - 1. Dilated veins on chest—superior vena cava syndrome
    - 2. Gibbus—tuberculous spondylitis
    - 3. Clubbed fingers—empyema, bronchiectasis, carcinoma
- II. Palpation
  - A. Decreased tactile fremitus
  - B. Decreased chest expansion
  - C. Absence of cardiac point of maximum impulse
  - \*D. Shift of cardiac point of maximum impulse
  - \*E. Tracheal Deviation
- III. Percussion
  - A. Decreased resonance (dullness or flatness)
    - 1. Dullness or flatness over the fluid
    - \*2. Shifting dullness
    - \*3. Shift in mediastinal dullness
    - \*4. Grocco's triangle
    - 5. Traube's semilunar space decreased
  - \*B. Increased resonance—Skodaic resonance
- IV. Auscultation
  - \*A. Friction rub of pleurisy
  - B. Over the fluid
    - 1. Decreased breath sounds
    - 2. Decreased vocal fremitus
  - C. Above the fluid
    - \*1. Egophony
    - \*2. Tubular breath sounds
  - D. Pneumohydrothorax—Hippocratic succussion

\*Of value in differentiating pleural effusion from pleural thickening



In spite of the fact that effusion due to congestive heart failure has a predilection for the right thorax it is, nevertheless, the most frequent cause of bilateral effusions.<sup>5</sup> Usually an enlarged heart on the chest film will aid in the diagnosis. Rabin and Blackman<sup>14</sup> studied 78 cases in which there was radiographic evidence of bilateral pleural effusion and a *normal* cardiac size. Under these circumstances neoplasms were the most frequent causes of bilateral effusions (44.9%). Disturbances of water and electrolyte metabolism (16.7%), pulmonary embolization (12.9%) and pyogenic infections (3.8%) were other causes. Only 3.8% of these cases were due to congestive heart failure!

With early, adequate antibiotic treatment of pneumonia the occurrence of an associated pleural effusion is unusual. However, even when the patient is apparently recovering satisfactorily an effusion may appear. If there is reappearance of signs of severe toxicity empyema is probably present. Streptococcal pneumonias give rise to particularly large and rapidly recurring effusions.

Effusions due to pulmonary embolizations can usually be readily recognized by a clinical setting of prior thrombophlebitis, surgical operation or chest pain. The fluid is rarely very large in amount and there is continuous, gradual absorption following cessation of embolization.<sup>1</sup>

Tuberculous pleural effusion most commonly occurs prior to the appearance of clinical pulmonary tuberculosis as detectable by ordinary diagnostic means. Later, after there is considerable pulmonary involvement caseous tuberculous material may contaminate the pleural space in large amounts—thus causing a tuberculous empyema.

The mechanism of production of the tuberculous pleural effusion without obvious underlying disease is shown by two studies. Paterson<sup>15</sup> inoculated guinea pigs with nonlethal strains of tubercle bacilli and three weeks later these, as well as control guinea pigs, were injected with virulent tubercle bacilli intrapleurally. He found, "The response to the intrapleural inoculation in the vaccinated animals is immediate and marked. One hour after inoculation

there is found some hemorrhagic exudate which is greater in amount than the fluid injected. This increases from day to day, reaching a maximum at the eighth or tenth day after which it is rapidly absorbed." There was little or no such reaction in the control animals. He concluded: "Our experiments show that such tuberculous effusions are not primary but are due to a reinfection either from within or from without, such infection taking place in a pleura rendered allergic by an already existing focus of infection." That such a focus is present was shown by Stead et al.,<sup>16</sup> who performed thoracotomies on 24 patients with "presumably tuberculous" but otherwise undiagnosed effusions. They found that, "Fifteen of the 24 patients had clear pathologic evidence of tuberculosis in both the lung and pleura." In 12 of these 15 it consisted of a caseous focus contiguous with the pleura. Hypersensitivity is now well-recognized as playing an important role in the development of tuberculous pleural effusions.<sup>16, 17, 18</sup>

Because hypersensitivity to even a small amount of tuberculin causes the effusion it does not develop until roughly about six months after the tuberculin skin test becomes positive.<sup>19</sup> Also, because tubercle bacilli may be present in relatively small numbers, culture of the fluid is frequently unrewarding. Various authors estimate that tubercle bacilli can be cultured from only 20 to 50% of these fluids.<sup>11, 19, 20, 21</sup>

Tuberculous pleural effusion should be considered to be a complication of pulmonary tuberculosis. In three series 20.6%,<sup>22</sup> 4.8% in chemotherapy treated and 22.5% in controls,<sup>23</sup> and 9.7%<sup>18</sup> of patients with tuberculous pleural effusions later developed pulmonary or extrathoracic tuberculosis. These figures clearly show the necessity of considering this condition as one meriting adequate treatment.

An "idiopathic" pleural effusion is one in which a diagnosis cannot be made in spite of the clinical picture, adequate examinations of sputum (or gastric contents) and pleural fluid for tubercle bacilli and no underlying lung disease which might cause the effusion is present by radiographic examination even after the effusion has cleared. This is not a rare diagnostic dilemma. In 444 cases of pleural effusion Tinney and



Olsen reported the diagnosis could not be made in 38%.<sup>3</sup> In other series 39%,<sup>4</sup> 17%<sup>6</sup> and 1%<sup>7</sup> of cases were not diagnosed.

These undiagnosed cases occur most frequently in about the second or third decades although they may occur in older age groups.<sup>11, 12, 19</sup> Skaggs and Smiley<sup>12</sup> studied 50 cases and found homolateral chest pain in 44, cough and weight loss in 33, anorexia in 21 and night sweats in 18. It should be noted that this early peak incidence and these signs and symptoms are, although non-specific, typical of tuberculosis. Furthermore, it was pointed out previously that tubercle bacilli are very difficult to culture from effusions which are due to tuberculosis. Falk<sup>19</sup> cited four previous authors' series which showed 30% of 435 cases of idiopathic pleural effusion developed pulmonary tuberculosis within five years. Roper and Waring<sup>24</sup> studied 141 adult white males with idiopathic pleural effusions and positive tuberculin tests. Within five years 65.2% of these men developed some form of active tuberculosis! In Skaggs and Smiley's<sup>12</sup> study of 50 patients 16% developed tuberculosis within six years. Tuberculin skin tests were positive in the 38 patients so tested. Incidentally, seven of the eight patients with tuberculosis had an extrapulmonary form.

The failure to develop clinical tuberculosis immediately after an "idiopathic" effusion should not cause one to assume that all is well. In one of the previously mentioned series<sup>24</sup> tuberculosis did not make its appearance in less than nine months after the effusion and the average time was 19.4 months! In the other series<sup>12</sup> tuberculosis appeared from six months to six years later.

The general statement that, "*Idiopathic pleural effusion in the tuberculin positive individual should be considered as being due to tuberculosis and treated accordingly*" has received strong support and should be axiomatic.<sup>10, 11, 12, 17, 19, 20, 25, 26</sup> It would be well worthwhile to discard the term "idiopathic pleural effusion" in *tuberculin positive* patients and substitute "pleural effusion, presumably tuberculous."<sup>1</sup> The presence of a positive tuberculin skin test is all-important since the pathogenesis of this type of effusion requires hypersensitivity to tuberculin! It is also important to do all procedures

which reasonably might furnish the key to the correct diagnosis. Mandel et al,<sup>27</sup> offer a "checklist" for use in attempting to diagnose cases of pleural effusion.

### X-ray Examinations

Adequate x-ray examination is often of great value in showing that a pleural effusion is present as well as sometimes being of aid in determining its cause. It may also be used as an aid in determining the site for thoracentesis.

It has long been realized that relatively small amounts of fluid in the chest are not readily demonstrable by physical examination. It is somewhat surprising to learn that large amounts are also necessary in order to be seen by the usual radiographic procedures. Kaunitz<sup>28</sup> was unable to see fluid at the costophrenic angles even after injecting 300 ccs. of normal saline solution. Markovits<sup>29</sup> states that about this same volume of fluid must be present to be visible "in the upright position." Barry<sup>30</sup> considered it a "well established fact that routine roentgenograms may fail to reveal as much as 500 ml. of pleural fluid." Wilson<sup>31</sup> found volumes exceeding 1000 cc. failing to produce "any of the accepted roentgen features of pleural effusion."

As will be seen, the radiographic appearance of pleural effusions may vary greatly. However, the appearance of fluid on a PA view is usually seen at first as an obliteration of the costophrenic angle(s) by a slight haze and this may cause the diaphragm to appear flattened. Careful scrutiny may reveal a thin wedge of increased density along the lateral chest wall just superior to this haze. As the amount of fluid increases an upward concave, indistinct line, higher laterally than medially will be seen. On the lateral view it appears higher posteriorly than anteriorly. The height of the curved line is roughly proportional to the volume of fluid and, when massive, only the medial portion of the apex may be aerated. Rarely, the entire hemithorax will appear opaque. Also as the volume of fluid increases the mediastinum will be shifted to the opposite side unless it is "fixed."

This characteristic x-ray configuration of pleural fluid is, for the most part, determined by two factors: gravity and the in-

herent retractility of the lung. (Capillarity and the nature of the fluid are minor factors.) The weight of the fluid causes it to first collect at the lung bases. "The *retractile power* of the lung is directly proportional to the distance from the hilus, the fixed point of the lung."<sup>32</sup> Therefore, the lateral portion of the lung, being furthest from the hilum, is quite retractile and the fluid ascends along the lateral wall in a gradually decreasing manner. Kaunitz<sup>33</sup> recognized three zones which gradually merge with each other in simple pleural effusions. Lowermost is a *radiopaque* zone in which the lung "floats" or is separated completely from the chest wall. The middle zone is *radiotranslucent* and represents a combination of fluid and aerated lung. Above this is a transparent zone too thin to be visualized on the radiograph. Kaunitz proved the presence of the latter zone by removing 10 cc. of fluid and injecting an equal amount of a light radiopaque oil into the pleural space. The oil floated to the top of the pleural fluid at a level which was actually higher anteriorly and/or posteriorly than there appeared to be fluid on a previous film.<sup>28</sup> Actually the upper level of the oil was nearly as high as the highest visible level of the fluid at the lateral chest wall!

In 1931, Rigler<sup>34</sup> discussed the difference of opinion among previous authors as to the freedom of movement of fluid within the pleural cavity. He concluded from his own studies that all transudates and most exudates moved with changes of position of the patient. Therefore, he suggested the use of the lateral decubitus position for determining the presence of small effusions.<sup>35</sup> (He states that at least two authors previously had suggested this procedure.) If the fluid is not encapsulated it will thus descend by force of gravity to the lowermost portion of the pleural cavity. If the involved side is dependent the fluid will be seen to "layer" along the lateral rib cage. If the involved side is uppermost the fluid will appear confluent with the mediastinal structures. Very small amounts of free fluid are demonstrable by this means and therefore a lateral decubitus film, preferably with the involved side down, should be obtained on any patient if there is any question concerning the presence of free pleural fluid.

### Atypical Types

Although most cases of pleural effusion will fit the previous description of roentgenographic findings there are *atypical* distributions.

1. *Interlobar*. During almost any effusion of more than a slight amount within a free pleural space the fluid will, at some time, invade the interlobar spaces. When viewed roentgenographically in the plane parallel to the fissure this will cause increased density of a somewhat wedge or band-like configuration. When viewed perpendicular to the fissure the density will not be as great but over a larger area and of a more circular or spindle-like configuration.

2. *Flat upper margin*. When air, as well as fluid, is present in the pleural cavity the upper margin of the fluid is a straight, horizontal line—the "air-fluid level." However, rarely the lung will have lost enough retractility to cause the upper margin of the fluid to be almost flat although no air is present.

3. *Peripherally loculated*. An effusion may initially be free in the pleural space but, with time, adhesions are formed which "loculate" some of the fluid to one area. This may be a single or multiple occurrence and free fluid may or may not be present also. Sante<sup>36</sup> noted, "Regardless of the location, there is one unvarying characteristic about localized effusions: the sharply outlined rounded margin, with its base at the periphery and the convexity directed inward toward the lung, because of the compressibility of the lung structure." He also advised fluoroscopy to aid in positioning the patient for the x-ray film since at *some* angle the peripherally loculated effusion "comes to the surface" (i.e., appears at the chest wall).

4. *Interlobar loculated*. In 1928, Stewart<sup>37</sup> reported a case in which four episodes of congestive heart failure were accompanied by the appearance of a shadow on the roentgenogram, apparently in the transverse fissure, and disappearing with clearing of the congestive failure. Within a short while another similar case was reported and, except for Stewart's case, it was stated, "A rather careful survey of the literature reveals that the condition either is extremely rare or has not been reported."<sup>38</sup> Since



then many cases have been reported with the features of: an interlobar loculated effusion; congestive heart failure; and clearance of the effusion with disappearance of the congestive heart failure. Because such an interlobar loculated effusion may have the appearance of a tumor it has been called a "vanishing tumor"<sup>39</sup> or "phantom tumor."<sup>40</sup> Indeed, the importance of this condition is that it is frequently thought to be a lung tumor. The incidence is rather rare since only 36 cases in the literature were found by 1955 and five more cases had been found at the Mayo Clinic in the previous nine years.<sup>41</sup> Another study revealed this condition in 0.22% of medical admissions.<sup>42</sup>

The mode of development of an interlobar loculated effusion may be by means of extension of a free pleural effusion into a fissure after which adhesions are formed "trapping" a portion of it there.<sup>43</sup> Geffer et al,<sup>39</sup> considered oblitative pleuritis as a prerequisite. Weiss et al,<sup>42</sup> found that "all cases (autopsied) have shown oblitative pleuritis of part or all of the pleural cavity." Two reports of interlobar loculated effusions during one bout of congestive heart failure but with generalized pleural effusions in later bouts is contrary to the generally accepted concept of mode of formation.<sup>40, 44</sup> Higgins et al,<sup>41</sup> found oblitative pleuritis often, but not invariably present. They found the predominant symptoms to be of left ventricular failure although right ventricular failure is usually associated with pleural effusion. They believed the interlobar pleura to be drained by pulmonary veins and the rest of the pleural space by systemic veins. Therefore, they concluded drainage of interlobar pleura by pulmonary veins would be more impaired by left ventricular failure than drainage of parietal pleura by systemic veins.

The latter authors noted the location of "vanishing tumors" in 41 cases to be: right transverse fissure in 26 cases; right transverse and right oblique in six cases; right oblique fissure only in four cases; left oblique fissure in three cases and the azygous fissure in two cases. DiMaio<sup>45</sup> has reported a case of congestive heart failure with transient loculated fluid in the superior mediastinal region and right axillary region as well as the transverse fissure.

The condition of "vanishing tumor" of the lung may readily be recognized on the roentgenogram if several things are kept in mind:

1. Some evidence of congestive heart failure such as an enlarged heart and/or pulmonary vascular engorgement is almost invariably present.

2. The density in question is in the region of an interlobar fissure, is homogeneous, and without lobulated edges as may be seen with neoplasms.

3. On the lateral view, if not on the PA view, there is usually some tendency to assume a spindle-like configuration.

Much attention has been given to "vanishing tumors" due to congestive heart failure but it should not be forgotten that pneumonia, and other conditions, can give rise to interlobar loculated effusions.

5. *Mediastinal.* Fluid may be localized, at least in part, in the paramediastinal regions. Katz and Reed<sup>46</sup> stated that in their experience this was the most common place for accumulation of an "atypical" pleural effusion. Freedman<sup>47</sup> described both anterior (to the pulmonary ligament) and posterior mediastinal effusions. *Anterior* mediastinal effusions are "represented by ribbon shaped shadows, parallel to either the left or the right cardiac silhouette, and producing a double cardiac contour on the diseased side." "The *posterior* mediastinal effusions produce either ribbon-shaped shadows running parallel to the left or right borders of the vertebral columns, or triangular shadows in the cardiophrenic angles. The base of these shadows is upon the diaphragm and their apices are directed toward the hilum." Storey<sup>48</sup> reported two cases in which encapsulated paramediastinal effusions simulated mediastinal tumors.

6. *Intrapulmonary.* As much as 1000 cc. of fluid may collect between the inferior surface of the lung and the superior surface of the diaphragm without causing any haziness or obliteration of the costophrenic angle.<sup>31</sup> The PA chest film of such an accumulation of fluid suggests an elevated diaphragm. Fluid from any cause may produce this phenomenon but blood has a "particular propensity" to do so. Although intrapulmonary pleural effusions are not well known they are not rare. Wilson<sup>31</sup> was able to find only 62 cases in a review of the lit-



erature in 1955 but found 24 cases in one hospital in an eight month period. Barry<sup>40</sup> found seven cases during the same time period that he observed 45 patients with "unmistakable signs of pleural effusion."

The localization of pleural fluid in the intrapulmonary region is probably due to "drawing" it into this region from the costophrenic angles due to capillary attraction<sup>49</sup> and a more "negative" pressure over the dome of the diaphragm during inspiration.<sup>31</sup> Actually, most pleural effusions may be intrapulmonary early but "spill over" into the costophrenic angles when larger volumes are formed.<sup>40</sup> Some authors believe that pleural adhesions are of importance in causing the intrapulmonary localization.<sup>50, 51</sup>

The diagnosis of intrapulmonary pleural effusion should be entertained in any case in which there appears to be an elevated diaphragm on the roentgenogram. This is particularly true when, if it occurs on the left, a wide area of opacity exists between the upper edge of the stomach bubble and the lowest portion of visualized lung.<sup>30, 31, 50, 51</sup> If the stomach bubble is not readily seen it can be made more prominent by the ingestion of a carbonated drink<sup>50</sup> or sodium bicarbonate.<sup>51</sup> Pneumoperitoneum may be used to outline the lower border of the diaphragm and is particularly useful when the intrapulmonary effusion is on the right.<sup>50, 51</sup> However, simpler roentgenological techniques are available. The lateral decubitus position will allow the intrapulmonary fluid to drain out and, with the involved side dependent, flow along the lateral chest wall.<sup>36, 35, 50</sup> Also, forced expiration in the upright position may displace the fluid so that a typical curved line of pleural effusion occurs.<sup>52</sup> On the usual lateral view a small amount of fluid is often seen extending in wedge-like fashion into a fissure.<sup>31</sup>

#### Examination of Pleural Fluid

There are two diagnostic aspects of pleural effusion: (1) the diagnosis of the *presence* of the effusion; (2) the diagnosis of the *cause* of the effusion. The first aspect depends mostly upon physical and radiographic examinations. The second aspect also depends upon physical and radiographic examinations but clinical history and examination of the fluid itself may be very helpful.

Examination of pleural fluid, as in any laboratory study, does not always lead to a diagnosis, and upon occasion, may even be misleading. However, when the diagnosis is not known from previously obtained data then fluid should be obtained without hesitation and those tests performed which, according to all information at hand, are most likely to aid in obtaining the correct diagnosis. The information gained from any single test is rarely diagnostic in itself but should be dealt with as another item to be considered in the differential diagnosis.

Each type of examination of pleural effusion will be discussed separately.

1. *Appearance.* Transudates will usually have a very clear, only slightly straw appearance. With the addition of more cellular elements, it becomes cloudier until finally, as an empyemic fluid, it is opaque, pus-like and viscid. An effusion with a high cholesterol content has a "characteristic satin-like sheen"<sup>53</sup> and the chyle from chylothorax has an appearance like milk or cream.

2. *Specific Gravity.* The measurement of the specific gravity is a simple procedure and has long been used as an aid in differentiating transudates from exudates. Usually, a specific gravity of less than 1.016 is considered characteristic of a transudate and above 1.016 characteristic of an exudate. However, in actual practice it will be found that the pleural fluid in a given condition is an exudate but occasionally will be found to be a transudate, or vice versa. Paddock<sup>54</sup> found that 90% of pleural effusions due to congestive heart failure had a specific gravity of 1.016 or less and 90% of tuberculous fluids to be 1.016 or more. Also, 31% of non-tuberculous infections had a specific gravity of 1.016 or less and nephrotic fluids were "uniformly" low. Myerson<sup>7</sup> generally agreed in that, "The specific gravity of pleural effusions of those patients with congestive heart failure averaged 1.010, while pleural effusions due to infections and neoplasm had an average specific gravity of 1.021." Goldman<sup>55</sup> stated, "All tuberculous fluids have a high specific gravity above 1.020 and coagulate rapidly." Also, it should be remembered that the specific gravity of cholesterol thorax fluid is usually high—a reading of 1.032 having been reported.<sup>53</sup>

Two sources of error may be encountered in using the specific gravity for diagnostic purposes. (1) The determination should be carried out with the temperature of the fluid being the same as that at which the hydrometer was calibrated. An error of as much as .010 may thus be avoided.<sup>54</sup> (2) A transudate of long standing may give a high specific gravity.<sup>56</sup>

3. *Protein.* Determination of protein content of pleural effusions has also been used in attempting to differentiate transudates from exudates. Three grams protein in 100 cc. fluid is usually used as the arbitrary dividing point. Although some authors consider the measurement of protein to be superior<sup>6, 7, 57</sup> others consider it to be no better than the determination of the specific gravity.<sup>54, 58</sup>

From several studies of protein content of pleural effusions<sup>7, 54, 57, 59</sup> the following conclusions may be drawn. Tuberculous fluid almost always has a high (greater than 3 gms. %) protein content. Pneumonia and malignancy fluids will usually have a content of greater than 3 gms. % but very infrequently it is less. The fluid of congestive heart failure is low in protein most of the time. Cirrhosis, and more particularly nephrosis, almost always have fluids of very low protein content.

Although the protein content of the fluid is only "circumstantial evidence" it may be of value in that it may lead to the diagnosis of tuberculosis or malignancy in a patient who also has congestive heart failure, etc.<sup>59</sup>

Electrophoretic patterns of pleural fluid proteins have failed to be of diagnostic value.<sup>57, 60</sup>

4. *Cell Counts.* Total leukocyte and differential counts may add to "circumstantial" diagnostic evidence although several authors have found them to be practically worthless or of little value.<sup>6, 7, 8, 58</sup>

Generally, exudates will have over 500 leukocytes per cubic millimeter with 80% or more of these being polymorphonuclear<sup>17, 56</sup> Paddock<sup>54</sup> found more than 1000 leukocytes/mm.<sup>3</sup> in 85% of pulmonary infections, 73% of tuberculosis, 42% of neoplasms, 27% of cirrhosis and 10% of cardiac cases. Although there are exceptions, tuberculous effusions have a preponderance of lymphocytes.<sup>17, 48, 56, 61</sup>

Robertson<sup>62</sup> found eight out of 253 cases of pleural effusions in which eosinophils constituted over 50% of the fluid leukocytes. (No other case had more than 1% eosinophils.) He was impressed that three of these cases were due to pulmonary infarcts. From this study and a review of the literature he believed tuberculosis or malignancy to be unlikely in the presence of pleural eosinophilia. Goldman<sup>55</sup> states high eosinophil counts may be present in many conditions. In a study of 146 "serous" pleural fluids Robertson<sup>6</sup> also found that more than 50% polymorphonuclear leukocytes did not occur in "neoplasm, transudate of infarct."

From 5,000 to 6,000 red blood cells/mm.<sup>3</sup> are necessary to give a red tint to a pleural effusion.<sup>3, 63</sup> However, a fluid may be "hemorrhagic" because of leakage of a small amount of blood into it during thoracentesis. Leakage of as little as 2 cc. of blood into 1,000 cc. of fluid could give a count of 10,000 red blood cells/mm.<sup>3, 54</sup> At least six authors have found hemorrhagic pleural effusions to be due to malignancies in  $\frac{2}{3}$  to  $\frac{3}{4}$  of cases.<sup>5, 6, 7, 54, 61, 63</sup> Tinney and Olsen<sup>3</sup> found the underlying cause of hemorrhagic effusions to be malignancy in 85% of cases and state, "This fact is of clinical significance because if congestive failure can be eliminated as a cause of bloody effusion in a specific case there is a 95% chance that a malignant process—is present." After malignancies the more common causes of hemorrhagic effusions include congestive heart failure, pulmonary infections and infarctions, trauma and cirrhosis—in approximate order of decreasing frequency. It is to be noted that tuberculosis is *not* a frequent cause of bloody effusion.<sup>61, 63</sup> A count in excess of 100,000 red blood cells/mm.<sup>3</sup> is rare in nontraumatic cases except in neoplastic fluids where it was found to occur in 12%.<sup>54</sup> Only 1% of cardiac effusions had such a count.

5. *Cytology.* The presence of malignant cells in the pleural fluid presupposes that involvement of the *pleura* by the malignancy must have taken place. Regrettably, this almost invariably indicates an incurable case. It is possible for a pulmonary malignancy to be present and causing bronchial obstruction. Infection distal to the obstruction may



then cause a pleural effusion but no malignant cells would be found in the fluid.

Unfortunately, cytological examination frequently fails to yield the diagnosis. Berliner<sup>63</sup> found tumor cells in 50% of 70 cases of hemorrhagic neoplastic fluids examined. Graham et al,<sup>64</sup> also found carcinoma cells "in about 50% of 226 cases of pleural effusion due to malignant tumors." Leuallen and Carr<sup>6</sup> found malignant cells in the fluid in 59% of carcinoma of the bronchus, 54% of carcinoma of the breast and 13% of lymphoma and leukemia cases. Tinney and Olsen<sup>3</sup> found malignant cells in 30% of cases of carcinoma whereas in Robertson's<sup>8</sup> series of malignant effusions only 24% could be "diagnosed with absolute certainty by cytological examination." Phillips and McDonald<sup>58</sup> were able to make a "positive diagnosis" by cytology in 38% of malignancy-proven cases of pleural effusions. Examination of multiple specimens will increase the possibility of finding diagnostic cells in malignant cases.<sup>6, 64, 65</sup>

Fortunately, "false positive" findings occur in only about 1% of examinations.<sup>58, 64, 65</sup> The most common cause of a false positive is pulmonary infarction but cardiac failure is also a relatively frequent cause.<sup>6</sup>

6. *Cultures.* Culture studies of pleural fluid will depend primarily upon the preceding clinical course as to what type of media is to be used and even if cultures are necessary at all. Blood agar is used for the more common pathogens, any of a number of media when tuberculosis is suspected, Sabouraud's and dextrose blood agar for fungi and anaerobic media when the rare case of Actinomycosis is suspected. Prevention of contamination of the specimen is, of course, imperative.

Many authors have stressed the importance of using adequate amounts of fluid when attempting to culture the tubercle bacillus. "Large amounts,"<sup>18</sup> 300 cc.,<sup>67</sup> 500 cc.,<sup>19</sup> and using the centrifuged sediment of "all"<sup>10</sup> the fluid have been suggested. Robertson<sup>8</sup> found that 10 cc. of fluid will result in positive culture of tubercle bacilli in 16% of cases of tuberculous pleural effusions whereas 100 cc. will give 52% positive cultures.

7. *Glucose.* Calnan et al,<sup>66</sup> studied the glucose content in 61 cases of pleural ef-

fusion and also summarized the findings of four previous, similar studies. They found only tuberculosis to cause less than 60 mg./100 ml. glucose content and most non-tuberculous effusions to have more than 100 mg./100 ml. They could attach "no significance" to intermediate levels. Deakins et al,<sup>78</sup> later reviewed the literature and studied the glucose in pleural effusions in 100 cases in which the diagnosis was made. They concluded that a glucose content of 26 mg./100 ml. or less was "highly suggestive" of tuberculosis and one of 80 mg./100 ml. or higher should make one suspicious of non-tuberculous causes. Peterson<sup>68</sup> had previously found somewhat similar results except that two of his three patients with pneumonia had less than 26 mg./100 ml. of glucose.

8. *Cholesterol.* Goldman and Burford<sup>53</sup> stated there were some 60 cases in the literature of pleural effusions of high cholesterol content and added three patients who were cured by decortication. Later Frew and Campbell-Fowler<sup>69</sup> added two more cases. They believed the etiology to not be related to a disorder of cholesterol metabolism but noted the "concentration of cholesterol is most probable in pathological fluid of considerable maturity, provided that it is sufficiently isolated from circulating body fluids—such conditions being met with in the case of old-standing effusion in a thick-walled space." Because of the chronicity, tuberculosis is usually, but not invariably, the cause. The cholesterol level may be very high (2165 mg./100 ml. in one of Goldman and Burford's<sup>53</sup> cases) and is always higher than a simultaneous fasting blood level.

9. *Amylase.* Pleural effusion may occur, particularly on the left, in association with pancreatitis and be noteworthy due to its high amylase content. Kalser et al,<sup>70</sup> described a case of relapsing pancreatitis with a pseudocyst of the pancreas and amylase and lipase in increasing order of concentration in the serum, pleural effusion and pseudocyst. They postulated that the enzymes reached the effusion by way of the lymphatics.

To be concluded in the September issue of *The Journal*.



# WHAT ARE WE DOING FOR OUR STROKE PATIENTS?

TODAY IN OKLAHOMA, as elsewhere, the disability commonly called "stroke" is being seen in ever-increasing numbers by practically all physicians-general practitioners and specialists alike. What are we doing for these patients? Is the physical residue of this condition impossible of treatment?

In the past, our medical attitude has been rather negative. The catastrophic intrusion of a "cerebro-vascular accident" (C.V.A.) upon an individual's functional and vocational capacities can be considered a tragedy of primary magnitude. From all sides, he finds rejection, latent and otherwise. As time passes, personal frustrations mount, and intolerance becomes displayed by the immediate family. Soon, society tends to look upon the hemiplegic as an outcast—to be tolerated, but not endured; to be sustained for basic needs, but not employed. To a lesser extent he also is denied recreational opportunities. These attitudes tend to incubate a mire of depression and loneliness for a man who is not a man.

There never has been a question of medicine not accepting the validity of the objectives for rehabilitation. Society, too, assumes that these services are inalienable rights. Nevertheless despite such unanimity of mutual interest, it is an admitted fact that such restorative medical care is expensive in terms of money, personnel and facilities. The "stroke" patient is not alone in this area of consideration. He assumes top interest because experience has proved beyond a shadow of a doubt that he can be retrained to live "within the limits of his disabilities" and "to the hilt of his capacities."

The answers to these questions are sig-

## HERBERT KENT, M.D.

Herbert Kent, M.D., graduated from the Royal College of Physicians and Surgeons, British Isles, in 1943 and has since been certified by the American Board of Physical Medicine and Rehabilitation.

Formerly located in Indianapolis, Indiana, Doctor Kent is now in private practice in Oklahoma City and in addition, is Associate Professor in the Department of Physical Medicine and Rehabilitation and Associate Professor of Preventive Medicine and Public Health at the University of Oklahoma School of Medicine.

He is a member of the American Congress of Physical Medicine and Rehabilitation, the American Academy of Physical Medicine and Rehabilitation, and the British Medical Association.

This paper was presented at the 53rd Annual Meeting of the Oklahoma State Medical Association at Tulsa, Oklahoma, April 21, 1959.

nificant not only to the special area of physical medicine and rehabilitation, but to medicine as a whole. The purpose of this paper is to illustrate what the physician and community can do to surmount the obstacles encountered in a management program.

In a recent review of 25 consecutive "stroke" cases (Table I) between 1955 and 1959 in the University Hospitals Clinic and in private practice, there were 15 "private" and 10 "clinic" patients.

Of these 25 patients, eight or 32% were female and 17 or 68% were male. Their ages ranged from 11 years to 72 years. By disability, 14 or 56% were right hemiplegics, and 11 or 44% were left hemiplegics. All but one of the right hemiplegics had varying degrees of dysphasia. By etiology, the majority were due to cerebral hem-

Patient	Age	Sex	Disability	Etiology	Therapeutic Goal
1) J. F.	53	M	Right hemiplegia Aphasia	Astrocytoma	Ambulation—died
2) B. W.	61	F	Right hemiplegia Aphasia	Cerebral hemorrhage	Ambulation, self-care
3) F. L.	70	M	Left hemiplegia Mental confusion	Cerebral thrombosis	Ambulation, partial self-care
4) E. E.	66	F	Right hemiplegia Aphasia	Cerebral hemorrhage	Ambulation, intelligible speech
5) G. M.	49	M	Right hemiplegia Aphasia	Cerebral hemorrhage	Ambulation, self-care
6) L. K.	52	F	Left hemiplegia	Cerebral embolism	Ambulation, finger function, self-care
7) M. S.	7	M	Left hemiplegia	Cerebral hemorrhage	Ambulation, self-care
8) B. D.	64	M	Right hemiplegia Aphasia, Incontinence	Cerebral thrombosis	Ambulation, partial self- care, continence
9) J. W.	63	M	Left hemiplegia	Cerebral thrombosis	Ambulation
10) D. B.	15	M	Left hemiplegia	Empyema, Brain Abscess	Self-care
11) W. W.	61	M	Right hemiplegia	Cerebral thrombosis	Ambulation, partial self-care
12) H. H.	56	M	Left hemiplegia	Cerebral thrombosis Diabetes mellitus	Ambulation, self-care, finger function
13) G. G.	59	M	Left hemiplegia	Cerebral hemorrhage	Ambulation, self-care
14) F. C.	72	M	Left hemiplegia	Cerebral thrombosis	Ambulation, self-care
15) J. D.	64	M	Left hemiplegia	Cerebral thrombosis	Ambulation, self-care
16) P. M.	40	F	Left hemiplegia	Mycotic embolism	Ambulation, self-care
17) J. P.	34	F	Left hemiplegia	Postpartum— Cerebral embolism	Ambulation, self-care
18) F. C.	63	M	Right hemiplegia Aphasia	Cerebral thrombosis	Ambulation, partial self-care
19) W. T.	42	M	Right hemiplegia	Cerebral hemorrhage	Ambulation, speech, self-care, employment
20) H. B.	59	M	Right hemiplegia Aphasia	Cerebral thrombosis	Ambulation, speech
21) L. H.	18	F	Right hemiplegia Aphasia	Cerebral hemorrhage (Traumatic)	Ambulation, speech, vocational rehabilitation
22) L. T.	11	F	Right hemiplegia Aphasia	Cerebral hemorrhage (Traumatic)	Ambulation, self-care, speech, school
23) J. M.	64	M	Right hemiplegia Aphasia	Cerebral thrombosis	Ambulation, self-care, died
24) F. L.	66	F	Right hemiplegia	Cerebral hemorrhage	Ambulation, self-care
25) W. B.	58	M	Right hemiplegia Aphasia	Cerebral thrombosis	Ambulation, self-care

TABLE I

orrhage or thrombosis. Tumor, abscess, and head injuries accounted for the remainder. Two or 8% of these patients succumbed during the rehabilitation period.

In assessing the results of rehabilitation for this group, it must be kept in mind that they represent severe types and degrees of disabilities. Neither must one assume that the ratios presented are specific although they do fall within national averages. On the whole, age, sex, and disability distributions are about equal, but the therapeutic goals are consistent with other similar studies. It may be generally stated that medical rehabilitation is possible in more than 90% of hemiplegics. On the other

hand, few "strokes" realize satisfactory vocational goals principally because employers will not hire such handicapped. In the second place even if hired, is any attempt made for selective placement consistent with residual vocational capacities of the individual. Consequently, in terms of occupational goals, rehabilitation cannot be considered complete unless the "stroke" is returned to a job or at least to a socio-recreational status.

Following a comprehensive physical medicine and rehabilitation program, 23 or 92% were capable of ambulatory activities; 19 or 76% were able to carry out self-care, and four or 17% could do partial self-care.

Rarely, does one find a hemiplegic who cannot achieve some benefit from rehabilitation. In these cases, there is usually a mental degeneration or other complication to mitigate against successful treatment.

### Discussion

Those concerned with rehabilitation believe the care of these patients lies within the province of the general practitioner. He often is the first to see the patient and can readily initiate the proper treatment before complications develop. Deformities and contractures, in addition to mental depression often result when treatment is delayed unduly. What does one do with such a patient?

When confronted with a case of recent hemiplegia, the rehabilitation treatment is multiphasic:

1. Bed - nursing care.
2. Ambulation.
3. Self-care activities. (A.D.L.)
4. Speech Therapy.
5. Vocational Rehabilitation.
6. Recreational.
7. Custodial.

#### 1. Bed - nursing care.

In general, treatment is begun early—the earlier the better. Where there is cerebral hemorrhage, many wait until the spinal fluid is negative for frank blood.

Bed care is confined to passive mobilization of the joints to prevent contractures from developing early. The shoulder, elbow, wrist, and fingers are often affected. A simple means of preventing a “frozen shoulder” or impaired shoulder joint range is a pillow in the axilla. At the wrist a splint is often required for supporting the paralyzed wrist and fingers in dorsiflexion—the optimal position of function. Later, a more functional type of bracing may become necessary. (Figure 1)

In the lower limb, “dropped foot” with external rotation develops early and if ambulation is encouraged, the many problems associated with peripheral paralysis is reduced considerably. A sandbag lateral to the hip joint with a functioning footboard or brace maintains correct alignment and prevents heel cord shortening. However, in many cases, these are only partially effective because as the patient moves these

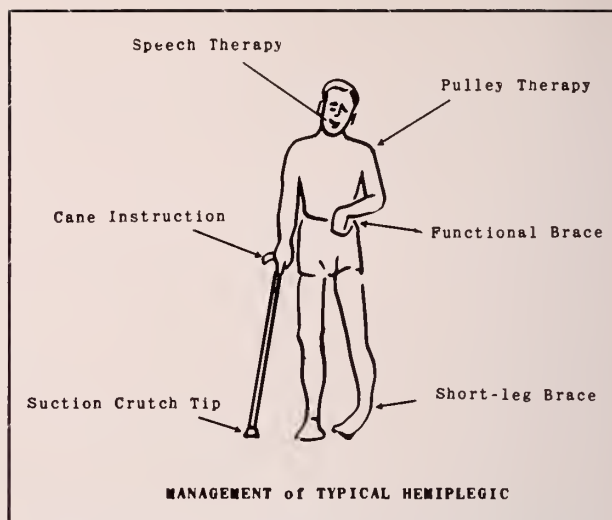


Figure 1

supports fall away. Of more importance is the placement of a knotted rope to the foot of the bed or an overhead “horizontal bar” to encourage and assist in the sitting position using the good limb.

From the upright position in bed, the patient is taught to shift off the bed and transfer to a wheelchair. Bladder, bowel, and decubiti complications become less of a problem when the sitting position is achieved. To encourage these ends, a low bed, e.g., “Vari-Hite” (Simmons) can prove of immeasurable value in the development of independence and freedom from nursing assistance.

#### 2. Ambulation.

Most “stroke” patients can flex and extend the hip and knee. When these are flexed at push-off, as in walking, the sole of the foot tends to invert and the ankle supinates. As a result, the patient, in trying to walk, often falls. To prevent this movement of the foot, he substitutes his gait mechanism, and consequently falls into the simpler pattern of walking with hip and knee joints extended or “stiff-legged.” In addition, in order to prevent the toe from catching on the floor, rug, etc., he circumducts the lower limb, producing the typical hemiplegic-type gait. If this circumducted gait is used for any period of time, the pattern set up becomes difficult to correct.

To restore the normal gait pattern when the pyramidal tract is involved and also to create confidence, a short-leg brace is usually prescribed. This brace is of the double-bar surgical steel variety, with stirrup at-



tachment, and 90 degree stop at the ankle. In some cases, to minimize the tendency for supination of the foot, a T-strap is added for stability. Finally, and most important, correct instruction and training is necessary if the patient is to learn to walk. Ambulation can be achieved in the majority of cases, particularly when the rehabilitation program is prescribed and followed by the physician in charge.

Many patients, especially the younger group, do not require an assistive aid in learning to walk. However, the aged individual may require a cane to promote balance and confidence, for no "stroke" case should be deprived of the opportunity to walk again.

In using the cane, a correctly adjusted length is necessary as well as instruction in its use. A suction crutch tip is essential to prevent accidents and not the commonly employed hard rubber tip which slips on smooth surfaces.

### 3. *Self-care Activities (A.D.L.)*

Since use of the digits is considered to be one of the highest achievements of man, coming later in the developmental scale, loss of this function often occurs early in the course. Conversely, when finger paralysis is present, the last function to be restored—if the damage is not too severe, is the ability to oppose the fingers. Many patients are most concerned with this upper limb disability. Consequently, they should be informed that recovery is best attained when ambulatory activities are primary and hand treatment secondary, never the reverse. It has been found that many patients have poor hand recovery anyway. The psychological repercussions, too, are many if a patient is told he will never have hand function again. This frequently defeats the comprehensive rehabilitation efforts being made, and is to be avoided at all costs.

Since the prognosis for upper extremity function is "fair" to "poor," in general, it is preferable to instruct the patient to use his unaffected limb to its best advantage. This is essential in developing the ability to care for all the inherent activities in daily living (A.D.L.), for example, eating, washing, toileting, etc., using unilateral prehension. A left hemiplegic does not have too great a problem in learning to do bimanual tasks

with the right hand if this had been the dominant limb previously. However, this can become a severe problem in a right hemiplegic. The urgency of instituting early training of the left hand becomes readily apparent. At first, simple activities are begun such as eating, dressing, and undressing. Later, more difficult tasks are practiced, such as left-handed writing. Since these individuals also have a concomitant motor aphasia, this becomes an important method of communication.

In practically all patients, unless mobilization therapy is begun early, pain very quickly develops in the paralyzed shoulder muscles. This is frequently due to fibrin deposits within the dependent synovial capsule of the shoulder joint. There is a natural tendency to adduct such a joint and to maintain this position especially with persistent pain. The end result of this immobility is a "frozen shoulder" with reflex dystrophic changes in the entire limb and hand.

A simple but exceedingly effective treatment is what is known as "pulley therapy." This consists of a pulley and a short length of clothesline rope. The paralyzed hand is well padded and tied to one end. The pulley is then hooked to a ceiling joist or overhead door board and the good hand pulls the opposite rope end. This maneuver permits the shoulder joint to be mobilized passively and within the patient's toleration of pain. At the same time, the unaffected limb is also strengthened.

### 4. *Speech Therapy.*

Aphasia in hemiplegics occurs usually when the dominant hand is affected. There may be either a motor or sensory aphasia—frequently both are present. The added speech frustration to paralysis often is overwhelming and patients become highly emotional when communication is attempted. Evaluation and appropriate treatment is best instituted by one specially trained in this work as a speech pathologist or therapist. Comprehensive rehabilitation of the "stroke" patient includes a proper schedule of speech therapy together with other treatment—never alone. Restoration of hand, speech, and comprehension requires guidance by representatives of several disciplines: physical and occupational therapy, speech therapy, and psychology.

Skill in oral communication is often necessary for social and economic rehabilitation. It has been said that the premorbid level of oral as well as written communication is rarely attained in hemiplegics. Consequently, the family must be made to realize at an early date that maximum recovery is very variable. To continue receiving outpatient language therapy after a reasonable period is unjustifiable. On the other hand, if speech therapy services are unavailable because of remoteness to facilities, these should not be denied as they become available.

In general the "stroke" patient should receive speech therapy as soon as feasible, otherwise the depressive effects of the disability can destroy motivation for other areas of therapy.

#### *5. Vocational Rehabilitation.*

There is enough information available to indicate the social and economic benefits of rehabilitation. The hemiplegic often requires an insight into accepting himself as a handicapped person if he is to utilize most effectively the vocational residual resources he possesses. Work satisfies basic needs and relates directly to the self concept of a well integrated personality. Dissatisfaction in the work area usually leads to inadequacy in other areas.

At the present time, employment for the "stroke" case leaves much to be desired especially when speech is involved. Many have accepted self-care goals as being the ultimate in rehabilitation. Sheltered workshops such as Goodwill Industries offer much in encouraging return to productivity. Industry yet has to contribute in this direction. A Ford personnel individual once remarked: "If a job can be done with one arm, why shouldn't an employer hire a man with one arm to do it?"

The Oklahoma Division of Vocational Rehabilitation (D.V.R.) is the state agency most often utilized as a community resource. This agency, if the criteria of eligibility are met, provides not only for service but also for vocational training and transitional placement for the handicapped.

For those who cannot work in the competitive labor market, the sheltered workshop can also provide a terminal or long range work environment with a fair degree of success.

#### *6. Recreational.*

As with a normal person, the "stroke" patient requires recreational pursuits for sound mental health. By such participation in diversional activities, he evidences dignity and independence. In this way he strives for a closer attachment to himself, his family, and community. Frustrations due to being withdrawn from the stream of life and lack of a job may be overcome in part by new outlets, and new found freedoms.

Programs for the hemiplegic are to be encouraged such as the Golden-Age Clubs or the Shuffleboard Clubs, as in southern Florida. In Oklahoma City, the Aphasia Foundation, a non-profit organization, meets twice monthly where hemiplegics particularly those with speech impairments can get together. Sing-songs, games, lectures of interest are held to encourage group participation. Recreational centers are also sorely needed where such individuals may be left in safety while the opposite member is out to work.

#### *7. Custodial.*

There will always be the "hard core" group of hemiplegics who cannot be taken care of by the family. In these cases, nursing homes with rehabilitation programs can serve to prevent bed-fastness and minimize the cerebral degenerations often seen as a sequelae in the elderly. In Oklahoma, chronic disease institutions for custodial cases are as yet unavailable. Recently, Senior Citizens, Inc., Oklahoma City, a non-profit, multi-sectarian agency is considering the development of a community where such individuals may be cared for by the individual religious denominations. Such group efforts are to be commended and encouraged.

### **Conclusion**

Although hemiplegia presents a challenge to all of us in its complexities and numbers, with today's dynamic approach, using rehabilitation techniques, more than 90% can be restored to a useful life. The 25 cases presented with their achievements in ambulation and self-sufficiency, indicates that it is possible to retrain the "stroke" to a greater degree than previously considered possible.

Pasteur Medical Building, Oklahoma City, Oklahoma





# The Use of Extracorporeal Hemodialysis: Artificial Kidney

## History

THE NAME "artificial kidney" was first suggested by Abel, Rowntree, and Turner<sup>1</sup> as early as 1912 when they utilized cylindrical collodion tubing through which blood flowed with the rinsing solution being circulated outside. Haas,<sup>2</sup> Murray, Delorme, and Thomas<sup>3</sup> used the same design but with cellulose tubing. Necheles<sup>4</sup> used so-called "Goldschelegerhaut" (Gold-beater's skin)—the peritoneal membrane of ox intestine—in preparing his dialyzing screen. These early pioneers were hindered by the disadvantage of requiring too large volumes of blood to fill their systems, utilizing too thick walled tubing for adequate dialysis, and employing inadequate or dangerous anticoagulants (hirudin prepared from leech heads was utilized). Although animals survived these early experiments, blood chemistries changed very little, even with prolonged procedures. In 1923, Ganter<sup>5</sup> reviewed the theoretical aspects of dialysis and stated, "I expect that, in one of the ways given above, an 'artificial kidney' can be produced, there-

## H. EARL GINN, M.D.

H. Earl Ginn, M.D., graduated from Emory University Medical School in 1957. At present Doctor Ginn is a Resident in Internal Medicine at the Veterans Administration Hospital in Oklahoma City.

Doctor Ginn is a member of Alpha Omega Alpha, the American Chemical Society and Alpha Kappa Kappa.

This paper is from the Medical Service, Veterans Administration Hospital and the Department of Medicine, University of Oklahoma Medical Center.

by lengthening life in the patient . . . " with uremia.

The rotating type artificial kidney was described in 1946 by Kolff and Beck,<sup>6</sup> who published detailed plans in 1947.<sup>7</sup> This machine required a small volume of blood (600 ml) for priming and offered a large dialyzing area (2.4M<sup>2</sup>). A thin column of blood, utilizing the principle of the Archimedes screw, is propelled by gravity through cellulose tubing wrapped around a rotating cyl-



inder. Dialysis is performed through the semi-permeable cellulose tubing, but, because of inadequate hydrostatic pressure across the membrane, filtration does not occur.

Guarino and Guarino<sup>8</sup> designed a system in which blood was outside the cellulose tubing and rinsing fluid was inside. Efficiency of this machine was low, however, and there was no safeguard against air embolus formation or against over hydration of the patient if a leak in the tubing developed. During twelve in vitro experiments, using old bank blood at Oklahoma City Veterans Administration Hospital, a leak in the system was invariably demonstrated. Control of blood flow and estimation of blood flow were impossible. Skeggs, Leonards, and Heisler<sup>9</sup> "sandwiched" cellophane sheets be-

tween grooved rubber plates, and, by forcing blood through the narrow spaces, produced a hydrostatic pressure gradient between the membrane and the rinsing fluid which flowed countercurrent to the blood so that ultrafiltration occurred in addition to dialysis.

A stationary coil of cellulose tubing and wire or plastic mesh wound together into a compact unit offering a large dialyzing area, but requiring a small blood volume was described by von Garrelts<sup>10</sup> and by Engelberg.<sup>11</sup> Kolff and Watschinger<sup>12</sup> further modified this type of hemodialyzer into a relatively cheap, disposable unit that can be mass-produced.\* A unit of this type is presently employed at the University of Oklahoma Medical Center.

\*Travenol Laboratory

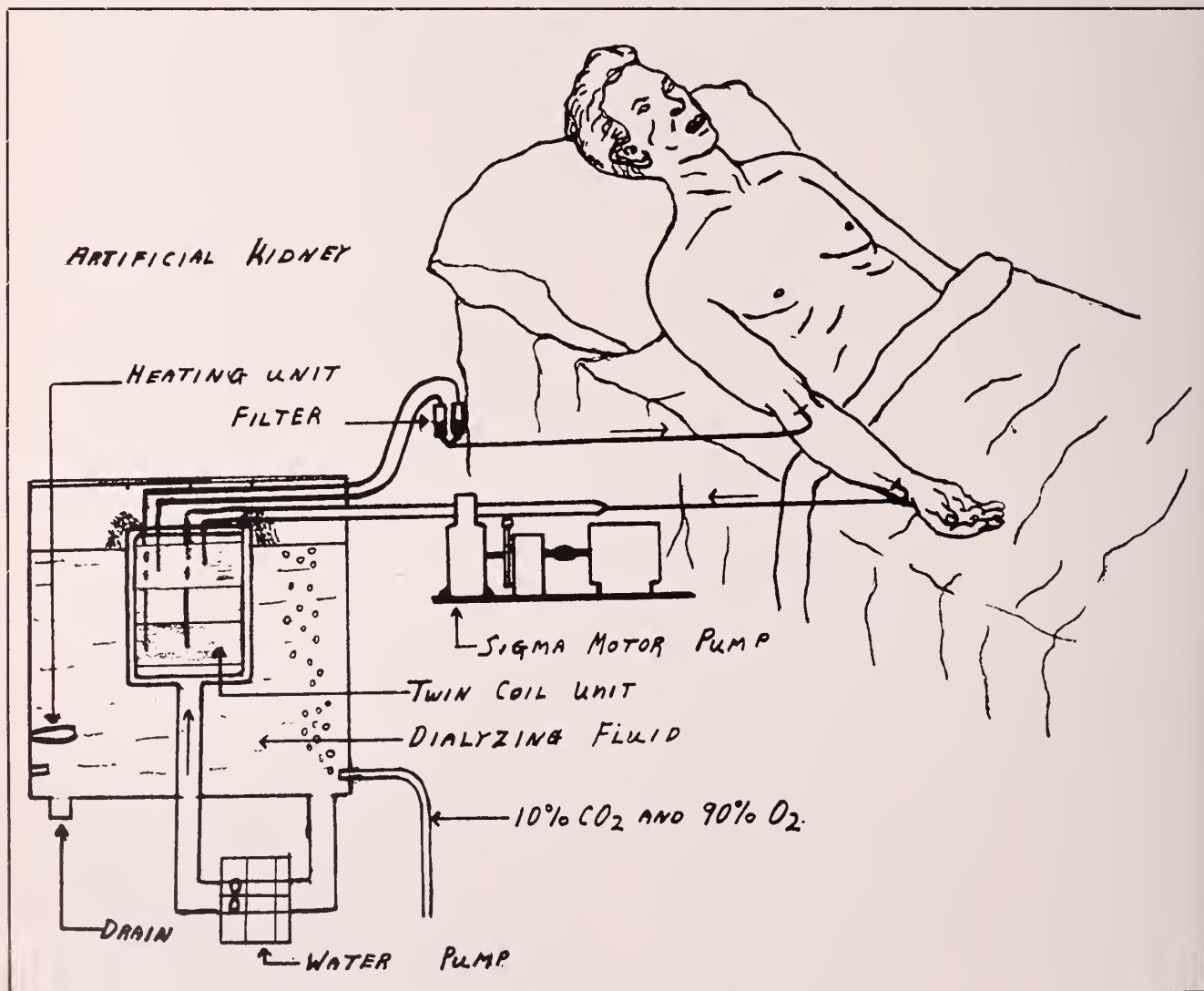


Figure 1. Diagram of Kolff "Twin-Coil" Artificial Kidney

## Principle of Hemodialysis With the "Twin Coil" Kidney

Blood is pumped from either a cannulated artery or large vein through a Sigma motor pump\*\* into the coiled cellulose tubing at a rate of 200-300 ml per minute and a pressure of approximately 160 mm. Hg. Sufficient pressure remains on leaving the dialyzing unit to force the flow of blood through a bubble catcher and filter and back to the patient (Figure 1). A large volume of an electrolyte bath solution calculated to correct the patient's electrolytes constantly flows on the other side of the cellophane membrane. Ten per cent carbon dioxide in 90 per cent oxygen is constantly bubbled into the bath solution to maintain a pH near 7.4. Retention products such as uric acid, urea, creatinine, and phenols as well as electrolytes, water, and glucose, are freely diffusible, whereas cellular elements, bacteria, and proteins will not pass through the membrane. A thermostat regulated heater maintains a temperature of 99 degrees F in the rinsing fluid. The rinsing fluid is changed every 90 to 120 minutes to maintain high efficiency. Three-fourths per cent glucose is utilized in the rinsing fluid to supply calories, to balance osmotic effect of plasma proteins and urea, to help in extraction of edema fluid, and to minimize hemolysis. The pressure gradient of about 160 mm. Hg. accounts for filtration as well as dialysis. Approximately 80 mg. of heparin are given to the patient initially; 20 mg. are added to each unit of priming blood (about 700-800 ml.) and 10 mg. are added to the system each hour except the last two hours of the procedure to maintain the clotting time at about twenty minutes.

### Indications for Use of the Artificial Kidney

Extracorporeal hemodialysis has been successfully used in the following conditions:

#### I. Acute renal insufficiency.<sup>13-18</sup>

- A. Following peripheral circulatory collapse, e.g., profound hemorrhage, severe anoxia, acute pancreatitis, trauma, head injuries, severe dehydration, carbon monoxide intoxication, myocardial infarction, septicemia.

- B. Hemoglobinuria and myohemoglobinuria, e.g., crush syndrome, sickle cell crisis, transurethral prostatectomy with hemolysis, incompatible blood transfusions, icterus neonatorum, hemorrhagic fever, severe burns.

- C. Acute obstruction of ureters.

- D. Selected cases of acute glomerulonephritis.

- E. Specific nephrotoxic or nephrosensitive substances, e.g., heavy metals (mercury, bismuth, phosphorus, uranium); antibiotics (bacitracin, viomycin, etc.); Leptospirosis; eclampsia; bacterial toxins; sulfonamides; serum sickness; organic compounds (carbon tetrachloride, black widow spider poisons, mushrooms, etc.).

- F. Hepato-renal syndrome.

- G. Acute renal failure supervening on existing renal disease.

#### II. Intoxications without direct nephrotoxic actions:

- A. Bromide<sup>19</sup>

- B. Salicylates<sup>20-23</sup>

- C. Barbiturates<sup>24-28</sup>  
(phenobarbital-pentobarbital)

- D. Glutethimide<sup>29</sup> (Doriden)

#### III. Selected cases of intractable edema.<sup>13-30</sup>

#### IV. Selected cases of chronic uremia.<sup>31</sup>

### Selection of Patients

Each patient with renal failure must be individualized. An outline of his management should be established, and the artificial kidney used, if indicated, in conjunction with intelligent medical management, but, certainly, not as a substitute for it. Some patients may have uremic symptoms with a blood urea nitrogen of only 50-60 mg. per cent, whereas, others may be free of apparent symptoms with a blood urea nitrogen of 200 mg. per cent. Therefore, no critical level of urea nitrogen can be established which categorically requires dialysis. Marked electrocardiographic evidence of hyperkalemia, electrolyte abnormalities,

\*\*Schaar and Company, Chicago, Illinois

such as K above 7.0 mEq/L, CO<sub>2</sub> combining power below 10-12 mEq/L, and elevations in plasma and red blood cell magnesium, have been helpful in decisions for dialysis, but these chemical abnormalities were, in our experience, accompanied by clinical changes. Our primary indication for dialysis in acute renal failure has been the appearance of clinical nervous system signs and symptoms, such as increased drowsiness, mental confusion, hyperirritability or hostility, convulsive seizures, hyperactive reflexes, and clonus, increased retinal sheen and papilledema, and manifestations of cardiovascular distress, such as pulmonary edema, increased second pulmonic sound, enlarging tender liver, and tachycardia. These changes often occur within the first three to six days of anuria or oliguria, but may occur even in the face of the polyuric phase of acute renal insufficiency. As Salisbury<sup>34</sup> has indicated, incipient diuresis is not a reliable criterion which would argue for delay of hemodialysis when other indications for dialysis exist. It is essential to completely re-evaluate each individual patient considered for dialysis at least two to three times each day.

In the evaluation of patients intoxicated by dialyzable poisons, an accurate history of the patient's having ingested more than the lethal dose of the compound, the presence of coma, or the manifestations of impaired renal function, accompanied by clinical evidence of toxicity are used as criteria for dialysis.

The rationale for extracorporeal hemodialysis in patients with chronic renal disease has been established by Goldner, Gordon, and Danzig.<sup>31</sup> Predisposing factors to a possible prolonged remission are (a) a general symptomatic and chemical "plateau," (b) the absence of severe generalized vascular disease, even though hypertension may be present,<sup>35, 36</sup> (c) the presence of polyuria,<sup>36</sup> (d) the absence of septicemia or infection,<sup>36</sup> and (e) a predialysis serum sodium level of above 130 mEq/L.<sup>36</sup> The consideration of hemodialysis in preparing patients for surgical procedures, especially at those aimed toward improving renal function is especially important. It may also be used following surgery to tide the patient

over temporary periods of increased renal insufficiency. Likewise, dialysis may be of value in patients who were known to previously have had fair renal reserve, but show temporary acute exacerbations of their primary disease. In our opinion, only a small per cent of patients with chronic renal disease are suitable candidates for hemodialysis. Symptomatic improvement is expected, but whether or not overall prognosis is significantly altered is a moot question. It is hoped that pitfalls of renal homotransplantation will be uncovered in the not too distant future and that this group of patients can be offered more permanent benefit.

### Complications and Contraindications

Active bleeding was thought to be an absolute contraindication until the Korean War, when this concept was shown to be often unfounded.<sup>32</sup> It is true that, in the face of uncontrollable gross hemorrhage, e.g. from peptic ulcer, gastric ulcer, esophageal varices, the procedure could be lethal. The requirement of heparin has been greatly decreased by the newer designs of artificial kidneys and the danger of hemorrhage is usually minimal. If such hemorrhage occur, approximately 1 mg. protamine sulfate for each mg. heparin used usually immediately returns the clotting time to normal. Fatal hemorrhage could result if the machine were left unattended and a leak in the system were to occur. Constant supervision is, therefore, essential.

Since the advent of cellulose and polyvinyl chloride tubing, pyrogenic reactions have been virtually eliminated. Fall in blood pressure may occur if there are acute changes in blood volume, but a significant fall can be eliminated by careful operating technique, so that blood volume is kept constant. An elevation in blood pressure is not infrequent and occasionally requires the transient use of anti-hypertensive drugs. Blood pressure usually returns to previous levels within six to twelve hours after dialysis. Transient mild leukopenia and thrombocytopenia may be produced, but seem to be of no clinical significance. The danger of transfusion reaction from the priming blood is minimized by careful typing and Coombs' cross-matching. Urinary output may di-



minish slightly on the day of, and on the day after hemodialysis, probably because of reduction of the osmotic load. Merrill, Le-grain, and Hoigne<sup>33</sup> observed no reduction in urine output when they maintained the blood urea at its pre-dialysis level by adding urea to the rinsing fluid.

Heart failure, with pulmonary congestion, might result, if the patient were overloaded with blood, but this is a technical error and can be avoided. Obviously, electrolyte abnormalities could be produced as another technical error. Indeed, correction of electrolyte imbalances and of pulmonary congestion are usually primary objectives in the use of extracorporeal dialysis.

### Report of Cases

CASE 1.—A 23 year old white housewife had a history of previous good health until two weeks prior to admission at Oklahoma University Hospital. She had delivered a normal infant approximately six weeks before admission, had had a moderate amount of ankle swelling during pregnancy, but, reportedly, had remained normotensive and without known evidence of kidney disease. Following delivery, she had continuous small amounts of bloody, rather foul-smelling vaginal discharge and suddenly became weak, two weeks before admission. This was followed by decreasing urinary output, so that, for three days before admission, her output was never thought to exceed 20-30 cc. per day. On admission, she had frequent grand mal seizures, increased retinal sheen, and

marked mental confusion. Blood pressure was 140 mm. Hg. systolic and 80 mm. diastolic; pulse rate was 120; and temperature, 101 degrees F. There was 2+ pitting pretibial edema and bilateral basilar rales. It was felt that she probably had acute tubular necrosis, secondary to hemorrhage and possible endometritis. On the day after admission, hemodialysis was performed (Table 1). At onset of dialysis, the patient was comatose and convulsing. Two hours after onset, she was alert and fairly well-oriented. After six hours of dialysis, the peripheral edema had diminished markedly and bilateral rales had disappeared. Chemical improvement was dramatic and electrolytes were within normal range. She was able, for the first time, to give a history. On the third hospital day, under light hypnosis and local anesthesia, a dilatation and curettement were performed with removal of small amounts of clots and placental fragments. Urine output remained below 10 ml. per day and she remained mildly febrile. On the fourth hospital day, she continued to deteriorate, became semi-comatose, and again developed grand mal seizures. Dialysis was repeated, following which there was correction of electrolytes to within the normal range, decrease in blood urea nitrogen from 136 mg. per cent to 62 mg. per cent, a loss of 10 pounds of edema fluid, cessation of seizures and marked improvement in orientation. The patient was then able to eat a high caloric, low protein, high fat diet. On both the ninth and fourteenth days of

TABLE 1

Anuric Day	Dialysis No.		Results		CI	CO <sub>2</sub>	BUN	Weight	Condition
			NA	K					
4	1	Predialysis	130	6.0	98	6	156	155	Comatose, Grand mal seizures
		Postdialysis	136	3.7	107	34	100	147	Alert and oriented
8	2	Predialysis	150	6.4	100	15	136	154	Comatose, Grand mal seizures
		Postdialysis	139	4.5	106	25	62	144	Alert and oriented
13	3	Predialysis	154	6.5	100	14	124	148	Lethargic, slightly disoriented
		Postdialysis	142	4.6	101	30	75	142	Alert and oriented
18	4	Predialysis	150	7.0	95	6	150	145	Semi-comatose, Grand mal seizures
		Postdialysis	136	4.3	100	23	71	140	Alert and oriented

Table 1. Results of hemodialysis on Case 1, a 23 year old housewife with necrotizing arteriolitis without hypertension.

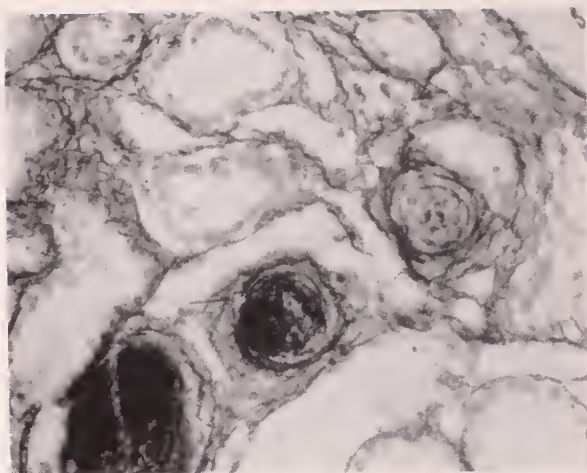


Figure 2-A. Azan preparation of kidney tissue from patient with necrotizing arteriolitis. Note the arteriolar sclerosis and hyaline necrosis of vessel walls.

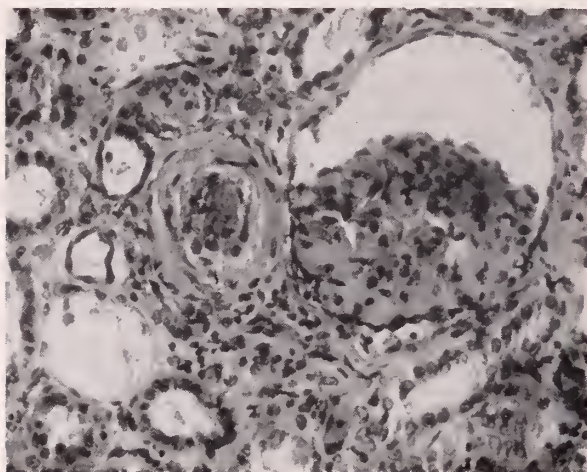


Figure 2-B. H and E preparation of kidney tissue from patient with necrotizing arteriolitis. Note the arteriolar sclerosis. Hyaline necrotic changes have extended to involve glomerular capillaries as well as arterioles and small arteries.

hospitalization, she deteriorated, requiring two further dialyses, with similar gratifying results, including lowering of plasma and red blood cell magnesium to within normal limits and decrease in serum K from 7.4 mEq/L to 4.3 mEq/L. Despite excellent results of hemodialysis and the usual medical regimen for acute renal insufficiency, this patient failed to excrete over 10 ml. urine per day, gradually deteriorated, and died, following a grand mal seizure and hypotensive episode on the twenty-fourth hospital day, prior to the proposed fifth dialysis.

**AUTOPSY FINDINGS**—The kidneys revealed moderate acute suppurative pyelone-

phritis and severe necrotizing arteriolitis (Figure 2). She also had evidence of generalized vascular disease, enlarged heart, signs of congestive heart failure, and cerebral edema.

**COMMENT.**—This intriguing case of a patient with severe necrotizing arteriolitis, in whom there was absence of a history or hospital course of hypertension, illustrates that the artificial kidney is only a temporary measure and can take the place of functioning kidneys but for a limited time.

**CASE 2.**—A thirty-three year old white female nurse was admitted to the hospital at the Medical College of Virginia; comatose; areflexic; and respiring shallowly, at a rate of five to six times per minute. She required endotracheal intubation and artificial respiration. A history of having ingested a "bottle" of Nembutal in an attempt at suicide was obtained from the husband. Dialysis was performed in the renal laboratory of Doctor Allan M. Unger. At the end of five hours on the artificial kidney, the patient was alert and oriented, respiring regularly at a rate of twenty per minute; and had return of normal reflexes. Psychiatric therapy was begun the next day.

**COMMENT.**—This case dramatically illustrates the efficiency of extracorporeal hemodialysis in removing barbiturates and in decreasing morbidity as well as mortality in severely intoxicated patients.

**CASE 3.**—A nineteen year old female was admitted at Oklahoma University Hospital, following a fifteen year history of chronic glomerulonephritis. She had been followed since the onset of her disease and was known to have severe renal insufficiency and advanced vascular disease. An exacerbation of her primary renal disease following an abscessed tooth prompted her admission. At this time, she was noted to have congestive heart failure, anasarca, and signs and symptoms of cerebral edema with grand mal seizures and a semi-comatose condition. Blood pressure was 220 Hg systolic and 120 mm diastolic. Pre- and post-dialysis chemistries are outlined in Table 2. After six hours on the artificial kidney, the patient was alert, oriented, and breathing regularly. She lost eight pounds of edema fluid, manifested by



TABLE 2

Dialysis No.		NA	Results		CO <sub>2</sub>	BUN	Plasma Mg.	RBC Mg.	Weight	Condition
			K	Cl						
1	Predialysis	126	7.8	88	13	180	5.07	9.23	124	Comatose, Convulsing, congestive failure
	Postdialysis	138	4.3	104	25	72	2.50	5.6	116	Alert and oriented, Breathing regularly

Table 2. Results of hemodialysis on a 19 year old female with chronic glomerulonephritis.

marked decrease in signs of congestive failure and decrease in peripheral edema. She was able to take oral feeding for the first time in several days. The patient was discharged three days after dialysis. She remained relatively comfortable, but deteriorated gradually after almost a month following dialysis and died suddenly at home.

**AUTOPSY FINDINGS.**—This patient had shrunken kidneys with microscopic evidence of severe chronic glomerulonephritis with an enlarged heart and evidence of congestive heart failure.

**COMMENT.**—This case demonstrates the capacity of the artificial kidney to temporarily aid the patient with chronic renal disease during a period of exacerbation. Unfortunately, it also supports the impression that remissions in such patients with advanced vascular disease and absence of polyuria are of shorter duration than would be hoped for.

**CASE 4.**—A twenty-seven year old white male<sup>37</sup> presented at Oklahoma City Veterans Administration Hospital with rapidly progressive chronic glomerulonephritis in the malignant phase. He had a healthy identical twin and monozygosity was varified by phenotyping and skin transplants. Hemodialysis was performed at the Medical College of Virginia in the renal laboratory of Doctor Allan M. Unger, resulting in a significant chemical improvement (Table 3).

Two days after dialysis, renal transplantation was performed from the identical twin by Doctor David Hume at the Medical College of Virginia and, twenty-one days later, bilateral nephrectomy to remove the nephritic kidneys, was successful. Subsequently, his blood pressure, urinalyses, and blood chemistries have been normal.

**COMMENT.**—This case represents the rationale for preparing the patient with chronic renal disease for a surgical procedure aimed at improving renal function.

### Summary

The history and principle of hemodialysis are briefly discussed. An outline of the types of cases that may be benefited by the use of the artificial kidney is given, with specific details concerning the selection of individual patients. Possible contraindications and complications are discussed. Four case reports are included as examples of the types of results to be expected from the clinical application of extracorporeal hemodialysis.

### BIBLIOGRAPHY

1. Abel, J. J., Rowntree, L. G., and Turner, B. B.: On the removal of diffusible substances from the circulating blood of living animals by dialysis. *J. of Phar. and Exper. Therap.* 5: 275, 1914.
2. Hass, G.: Die Methodik der Blutausschwung, in Handbuch der biologischen arbeitmethoden, Edited by E. Abderhalden. Berlin. Urban and Schwarzenberg, 1935.
3. Murray, G., Delorme, E., and Thomas, N.: Development of artificial kidney, *Arch. Surg.* 55: 505, 1947.
4. Necheles, H. Uber Dialysis des stromenden Blutes and lebenden, *Klin. Wehnschr.* 2: 1257, 1923.

TABLE 3

DIALYSIS NO.		Results		Cl	CO <sub>2</sub>	BUN	Creatinine	Ca	Phos
		Na	K						
1	Predialysis	131	5.6	94	17	124	16.2	9.6	7.2
	Postdialysis	141	3.8	99	25	54	7.8	10.4	3.5

Table 3. Results of hemodialysis on a 27 year old male with chronic glomerulonephritis two days prior to renal transplantation from his identical twin.



5. Ganter, G.: Ueber die Beseitigung giftiger Stoffe auf den Blute durch dialyse. *Muechen Med Wehnschr*, 70: 1478, 1923.
6. Kolff, W. J. and Berk, H. T. J.: The artificial kidney: a dialyzer with a great area. *Acta Med. Scandnav*. 117: 121, 1944.
7. Kolff, W. J.: New ways of treating uraemia: artificial kidney, peritoneal lavage, intestinal lavage. London, J. and Churchill, A., Ltd., 1947. p. 112.
8. Guarine, J. R. and Guarino, L. J.: Artificial kidney: simplified apparatus. *Science*. 115: 285, 1952.
9. Skeggs, L. T., Leonards, J. R., and Heisler, C. R.: Artificial kidney: II Construction and operation of improved continuous dialyzer. *Proc. Soc. Exper. Biol. and Med.* 72: 539, 1949.
10. Von Garrelts, B.: Twenty-third meeting of Northern Surg. Assoc., Stockholm, Sweden, 1947. Munksgaard, Copenhagen, Denmark, 1948, p. 423.
11. Inouye, W. Y. and Engelberg, J.: Simplified artificial dialyzes and ultrafilter. *Surgical Fourm.* 4: 438, 1953.
12. Kolff, W. J. and Watschinger, B.: Further development of coil kidney. *J. Lab. and Clin. Med.* 47: 969, 1956.
13. Kolff, W. J.: The artificial kidney, past, present, future. *Circulation*. 15: 285, 1957.
14. Schreiner, G. E.: The treatment of acute renal insufficiency. *Med. Annals*, 12: 531, 1953.
15. Kolff, W. J.: Acute renal failure: causes and treatment. *Med. Clin. N. Am.* 39: 1041, 1955.
16. Merrill, J. P.: The treatment of renal failure; therapeutic principles in the management of acute and chronic uremia, New York, Grune and Stratton, Inc., 1955.
17. Relman, A. S.: Diagnosis and management of renal failure. *DM*, June, 1956.
18. Strauss, M. D. and Raisz, L. G.: Clinical management of renal failure, Springfield, Ill. Charles C. Thomas, 1956.
19. Costa, J. S., Nenno, R. P., Schreiner, G. E., and Berman, L.: Some observations of a case of bromide intoxication undergoing hemodialysis. *Am. J. Psychiatry*. 113: 1030, 1957.
20. Doolan, P. D., Walsh, W. D., Kyle, L. H. and Wishinsky, H.: Acetylsalicylic acid intoxication. A proposed method of treatment. *J.A.M.A.* 146: 105, 1951.
21. Schreiner, G. E., Berman, L. B., Griffin, J. and Feys, J.: Specific therapy for salicylism. *N.E.J.M.*, 253: 213, 1955.
22. Leonards, J.: Use of artificial kidney for purposes other than treatment of uremia. *Tr. Am. Soc. Artificial Internal Organs*. 1: 46, 1955.
23. Thomsen, A. C. and Dalgard, O. Z.: Hemodialysis in acute acetylsalicylic acid poisoning. *Am. J. Med.*, 25: 484, 1958.
24. Berman, L. B., Jeghers, H. J., Schreiner, G. E., and Pallotta, A. H.: Hemodialysis, an effective therapy for acute barbiturate poisoning. *J.A.M.A.* 161: 820, 1956.
25. Walsh, W. P., Kyle, L. H., Doolan, P. D. and Jeghers, H. J.: Treatment of barbiturate poisoning by hemodialysis. *Am. J. Med.* 13: 104, 1952.
26. Kyle, L. H., Jeghers, H., Walsh, W. D., Doolan, P. D., Wishinsky, H., and Pallotta, A.: Application of hemodialysis to treatment of barbiturate poisoning. *J. Clin. Invest.* 32: 364, 1953.
27. Leonards, J. R., and Sunshine, I.: Removal of barbiturates from blood by artificial kidney. *Fed. Proc.*, 12: 237, 1953.
28. Unger, A. M. and Becker, E. L.: The artificial kidney, the clinical use of hemodialysis, *Vir. Med. Monthly*, 84: 66, 1957.
29. Schreiner, G. E., Berman, L. B., Kovack, R., and Bloomer, A.: Acute glutethimide (Doriden) poisoning. *A.M.A. Arch. Int. Med.*, 101: 899, 1958.
30. Leonards, J. R., Skeggs, L. T., Jr., and Kahn, J. R.: Removal of fluid from normal and edematous dogs by means of ultrafiltration. *Fed. Proc.*, 10: 214, 1951.
31. Goldner, F., Gordon, G. L., Danzig, L. E.: Use of artificial kidney in chronic renal disease. *A.M.A. Arch. Int. Med.*, 93: 61, 1954.
32. Meroney, W. H., and Herndon, R. F.: Management of acute renal insufficiency, *J.A.M.A.*, 155: 877, 1954.
33. Merrill, J. P., Legrain, M., and Hoigne, R.: Observations on the role of urea in uremia, *Res. Soc. Abstr.*, Am. Foundation for Clin. Research. *Am. J. Med.*, 14: 519, 1953.
34. Salisbury, P. F.: Timely versus delayed use of the artificial kidney. *A.M.A. Arch. Int. Med.*, 101, 690, 1958.
35. Kolff, W. J.: Artificial kidney, treatment of acute and chronic uremia. *Cleveland Clin. Quart.* 17: 216, 1950.
36. Merrill, J. P.: The use of the artificial kidney in the treatment of uremia. *Bull. N. Y. Acad. Med.* 28: 523, 1950.
37. Ginn, H. E.: The functional status of the denervated kidney following successful hemotransplantation in identical twins. *Clinical Research*, 6: 413, 1958.

924 N.E. 13th, Oklahoma City, Oklahoma

THE MEDICAL SCHOOL LIBRARY is displaying a collection of old books on epidemics, including Daniel DeFoe's "History of the Great Plague in London in the Year 1665." Volumes date back to a reprint of a 1722 book.

# HISTOCHEMICAL COMMENTARY

THE FIELD of "Histochemistry" as a definite discipline has only recently risen into prominence. Prior to World War II it had been in the main submerged into the encompassing field of "microtechnic" and very few investigators followed it as a primary interest. Cajal, Pappenheim, Unna, Golgi, Erlich, Feulgen, and many others occasionally dipped into the field in the course of their studies but with the exception perhaps of Feulgen, it was only a passing phase. They utilized histochemical methods, or what they believed to be histochemical methods, in the course of certain investigations and when that study was completed, they passed to other fields. Probably none of them would have considered himself a "histochemist." However, since World War II, interest has been ever increasing in histochemistry and in a few years it has developed from a strictly research tool into an accepted and distinct field within the greater realm of microtechnic. Certain of its procedures are now used as routine processes in the preparation of necropsy sections, surgical biopsies, and in teaching slides for microscopic anatomy, both normal and morbid. However, along with the rapid growth in interest in the field, a number of misconceptions have also developed and many men using the various technics do not really understand them. Consequently, a very brief review on histochemistry should be of interest and of value.

Histochemistry in itself is not new. Investigators have been using certain of its facets since the eighteenth century. Histochemistry as it is understood today prob-

## JOHN F. LHOTKA, JR., M.D.

After receiving his Ph.D. in Anatomy, John F. Lhotka, Jr., M.D., graduated from the Northwestern University Medical School in 1951. He is now Associate Professor of Anatomy at the University of Oklahoma School of Medicine.

Doctor Lhotka is a member of the American Association of Anatomists, the Histochemical Society, the Biological Stain Commission, the International Academy of Pathology and the American Chemical Society.

ably was given its foundations by the French scientist Raspail early in the nineteenth century. However, with the development and perfection of the anilin dyes, histochemistry as such was almost completely submerged in the blossoming field of microtechnic. The modern era began in 1936 when Lison published his classic work "Histochimie Animale" and revitalized histochemistry as something separate and distinct from general microtechnic. World War II delayed the rebirth but by 1947, it was rapidly developing into a discipline of its own. For example, prior to this period there was not a single journal devoted primarily to histochemical methods and research. Today (1959) there are about a dozen in existence in at least four languages. In addition, many of the older microtechnical and histological journals are devoting increasingly larger amounts of space to this phase of tissue study.

Just what is "histochemistry"? This is an important point since some discrepancies in definition do exist. In broad terms, histo-

chemistry is that science which attempts to identify and localize at their *tissue sites*, without distorting the anatomical architecture of the structure being examined, the various chemical components which constitute that structure. The important point is that the architectural integrity of the structure under investigation is preserved as far as possible in that state which it possesses in life. Needless to say, this is often more the ideal than the reality but it does represent the ultimate objective of the histochemist. The term "cytochemistry" is often encountered and is used to define certain phases of histochemistry in much the same way that the term "cytology" is used in relation to "histology." However, for all practical purposes, the term "histochemistry" can be used to include all aspects of such investigations from the cellular to the organ levels. The term "microchemistry" is sometimes confused with "histochemistry" but generally this term is restricted to that form of chemical endeavor in which minute amounts of chemicals are used to perform reactions, usually analytical in nature. No attempt is made in microchemical procedures to preserve the architectural integrity of tissues under investigation when such methods are used in biochemical studies.

### Theories and Methods

There are a number of basic approaches which may be used in making histochemical studies. These include "chemical" methods in which an analytical chemical reaction is applied to the tissue in question in an effort to identify a particular substance within the tissue, usually by producing an insoluble colored product at its site. "Physical" procedures are also used in which a chemical reaction is not involved but where the histochemical localization is made by means of physical phenomena. This would include, for example, such methods as dissolving dyes in tissue fats, fluorescence technics utilizing dyes which react to ultraviolet light, and such complex procedures as ultraviolet spectrography, x-ray spectrography, spark spectrography, and tracer methods utilizing radioactive isotopes. Certain "physiochemical" technics are also of value such as the use of the dissociation constants of protein substances by staining them with dyes buffered

at various pH levels. Finally, microincineration methods have value, especially in the localization of certain heavy metals. In this technique, the slides are prepared routinely and the organic material is driven off by heat. The fired preparation is compared against variously stained control slides for evaluation. Chemical methods may also be applied to incinerated tissues. All in all, these complicated procedures are essentially research methods, and the average person will have little occasion to use them. However, many of the chemical and a few physical techniques have developed into standard procedures and are used as routine methods in hospital and university tissue laboratories. The bulk of these methods constitute the field called by Gomori "microscopic histochemistry" and it is this particular phase that will be covered in this paper. Complex research procedures will be considered only in passing and as they might apply to the more basic technics. One of the difficulties that has developed in histochemistry is that a great many individuals using these procedures do not understand the various fundamental theoretical methods behind the histochemical localization of any particular tissue component. Histochemistry is not synonymous with the term "microtechnique." In microtechnical staining, the principal aim is to color the various tissues in such a manner that they may be differentiated from each other under the microscope. No attempt is made to determine the precise chemical character of the stained structure, other than perhaps to determine its basic or acidic nature. The colorations in histochemical localizations at any particular site are supposed to indicate or suggest the chemical composition of the colored structure or substance. In a routinely stained slide, using, say, the hematoxylin and eosin technique, the problem of false positives, diffusion of chemical substances, or inactivation of components does not exist. The slide will be considered satisfactorily stained if the various structures can be differentiated satisfactorily under the microscope. This is quite the opposite in histochemical preparations where an attempt is made to actually identify certain substances by the colorations obtained. These colorations or localizations as they are called are obtained



by means of a number of various methods which fall into general groups.

The first means of obtaining color at a tissue site is that situation in which the component to be localized is already naturally colored, and the slide need be only processed to demonstrate this fact. This is the case with certain iron pigments normally found in the body and which are colored brown even in an unstained slide. Normally this type of coloration is not particularly desirable but in the broadest sense it can be considered a very simple histochemical localization.

The second general method is one in which the substance to be localized may be colored directly in one step with sufficient selectivity to be classed as a histochemical localization. This would include, for example, the localizing of certain lipid components by dissolving in them colored fat soluble dyes. The demonstration of nucleic acids with the biologic stain methyl green also falls into this category.

A third method commonly used is to perform a chemical reaction on the substance to be localized producing radicals which may be subsequently demonstrated by second reaction. The various polysaccharide localization methods in which periodic acid reacts with the 1,2 glycol linkages of the tissue polysaccharide to form aldehyde radicals, which are then demonstrated by means of Schiff's reagent, is a good example. This is a two step reaction in which 1) radicals are produced from the component to be localized and 2) the radicals are stained violet by the leucofuchsin. The important point to remember is although the reaction is done in two steps the component that is eventually colored is a product produced *directly* from the substance to be localized. Another fourth method is a somewhat complex variation of method three. In this particular technique, also usually done in two or three steps, a reaction is performed between the component to be localized and a second compound. The substance to be localized is joined to the introduced compound and the coloring localization is then performed upon the introduced compound. The difference between this type of

reaction and method three is obvious. In method three, the actual color reaction is performed upon the products of the substance to be localized, where as in this procedure the coloring is not directly imposed on tissue component but rather upon the introduced substance bound to the tissue component. The Hale iron technique for acid polysaccharides is a method of this type. Dialyzed iron is bound to the acidic groups of the acid polysaccharides and then a routine Perls iron Prussian Blue localization is performed on the section. Thus, the sites of the acid polysaccharides are demonstrated indirectly by means of the iron reaction.

Other technics are also used which are similar to methods three and four but involve multiple steps. In general the first step is to modify in some manner the component to be localized. This modified component is then either directly attacked as in method three or united with another substance as in method four. Finally, the coloration is produced at the tissue site. Certain cation localization methods for "bound" components are of this type. First, the bound element must be released from its organic bonding and then the actual localization reaction is performed. There are, in fact, a number of methods which utilize four or more successive steps but the delicacy of such techniques is obvious and a few of the more reliable histochemical procedures fall into this category.

Enzyme localization techniques are slightly different in nature although basically they follow the same patterns. The main difference between enzyme and other tissue localizations is that the activity of the enzyme plays a vital role in the localizing mechanism. Basically there is one over all procedure. This consists of one in which the enzyme reacts with a chemical in a substrate during a period of incubation to produce a compound at its site which may be demonstrated chemically by one of the methods previously listed. The alkaline phosphatase localizations provide an excellent example of the technic. The classic method is one in which the enzyme during substrate incubation precipitates a calcium salt which is then demonstrated by means of a cobalt or

silver histochemical substitution technique. The exact methods vary but the principal is the same whether a relatively simple technic like the illustration is used or if the more complex procedures utilizing tetrazolium compounds are involved. Many of the localization methods are quite complicated, especially in the formation of the substrate.

It can be seen from this general outline that the histochemical localizations may be a complex matter and some of them may be somewhat questionable. The accuracy of any particular method will depend upon several factors. The first important point to consider is the known chemical specificity of the particular chemical or physical reaction involved in making the localization. Thus in a procedure such as the periodic acid method for polysaccharides with a known and reliable chemical mechanism involved we are dealing with a procedure which can be considered almost specific within its chemical limitations. On the other hand, with a procedure such as the Alcian blue method for acid polysaccharides which is based on metachromasia, a reaction not entirely understood, the accuracy of the technique is somewhat less exact. Such a method must be considered only highly "selective" rather than "specific." The enzymes reactions are even more complex, and true "specificity" in many of these techniques is often more optimistic than factual.

The objective of this paper is not to discuss details of localization, but it might be of value to review the histochemical status of the principal tissue components.

### **Tissue Processing**

Before considering the histochemical status of the various principle tissue components, it might be of value to comment briefly on certain aspects of tissue processing. When tissues are prepared for routine microtechnical staining, they pass through a number of standardized steps, fixation, embedding for sectioning (usually involving the process of dehydration), sectioning, staining (which again may involve hydration and dehydration) and finally mounting of the completed stained section with either water soluble or synthetic media and a cover slip. At some point in this sequence

the tissue sections are fixed to slides, usually after sectioning but in some cases after staining. In general, within the limits of reason, nothing is too critical in most cases in the sequence except during the actual staining and a few minutes either way makes little difference in the ultimate outcome. The composition of the fixing fluid, except in very specific cases such as certain silver stains, is not too vital providing it accomplishes its mission without distorting the tissues involved. This is certainly not the case in histochemical procedures. The fixation must be exact and in the proper fluid, if fluid is to be used at all in the fixation. Tissues can not be placed in 10% buffered formalin, the workhorse of most necropsy rooms, and later be processed indiscriminately for histochemical localizations since the fixation will have already destroyed the possibilities of success in many cases. The very act of paraffin processing, regardless of fixation, will ruin the chances of most localizations of lipids and enzymes, not to mention the even more delicate tissue components. The use of salts in the fixative, such as in Zenker's solution, will ruin many histochemical possibilities although the use of salts may even be indicated in other procedures (chromation for certain forms of lipid localizations, for example). As a rule, carbohydrates and proteins will show greater resistance to routine formalin fixation and paraffin processing but other components usually need special consideration. Fixation in such unusual fluids as ice cold acetone may be indicated and in many cases of enzyme work, the freeze dry apparatus must be utilized. If any histochemical procedures are indicated, the investigator must take this into consideration and take appropriate steps from the very beginning. Once a tissue block is fixed in the wrong fluid, it can not be refixed in the proper one. This is also true in embedding. You can not perform enzyme localizations on the usual paraffin section. Frozen sections are frequently the only acceptable ones for such procedures. Special considerations must usually be taken when certain of the "physical" histochemical methods are used. Autoradiographs, for example, may need special processing although the investigator must remember that a "tagged" ele-



ment will react histochemically exactly as an untagged one will in most cases and nothing unusual should be expected in its chemical reactions just because radioactivity is present. All in all, the preceding paragraph can be summarized by paraphrasing the High Lord Executioner in the Mikado and saying "Let the processing fit the procedure."

### Nucleic Acids

Histochemical localization of nucleic acids is probably one of the oldest recognized series of techniques now in histochemical existence. The Feulgen procedure for the desoxyribose nucleic acid complexes dates back to 1924. This method is based on the hydrolysis of the tissue nucleic acids with dilute hydrochloric acid, followed by staining of released aldehyde radicals with Schiff's reagent. The sites of desoxyribose nucleic acids are then stained violet. The specificity of the Feulgen technique has been the subject of a vast controversy over the years. Its specificity has been questioned on numerous occasions but today the consensus appears to be that the method, if not specific, is exceedingly selective for the desoxyribose nucleic acid complex. The Feulgen reaction has been used widely in research in all fields of microscopic anatomy and has been very popular in the study of certain malignancies. Another method for nucleic acids that has received prominence is the pyronin-methyl green technique. This is essentially an old method that goes back to the work of Pappenheim in 1889. However, this method has been revived by Kurnick and others, and the thesis developed that the methyl green was specific for desoxyribose nucleic acid complexes, while the pyronin simultaneously demonstrated the ribonucleic acid complexes. Subsequent studies have shown that some aspects of the reaction are probably not reliable, but the specificity of the methyl green has some validity. The methyl green-desoxyribonucleic acid mechanism is believed to be based on a direct reaction of the dye with the acid complex and is in the nature of a polymerization phenomenon. There are other methods for nucleic acids but these two technics are representative of the most popular procedures. The use of enzymes in a negative approach to nucleic

acid localization is also very popular. Sections are treated with nucleases and the effect on subsequent localizations noted. This sort of comparison evaluation has, in fact, played an important role in developing many histochemical methods for other components as well as nucleic acids.

### Proteins

Protein histochemical reactions are not especially popular probably because the overwhelming bulk of any particular tissue is protein. In many ways, the eosin staining in any routine hematoxylin-eosin staining method could be considered in a wide sense a protein histochemical procedure. Many of the standard biochemical techniques for proteins, such as the xanthoproteic method, are not generally used in histochemistry because the severe treatment destroys the architecture of the tissues and renders invalid the primary purpose of a histochemical localization. Some standard biochemical tests for protein, Millon's reaction for example, may be utilized for histochemical localization within certain limits. However, certain of these methods have been adapted to histochemistry with some success such as the alloxan and the ninhydrin techniques. These procedures are based primarily on the reactions of certain radicals normally associated with proteins such as amino groups. The dinitrofluorobenzene technic also falls into this group. These methods are interesting and do possess some degree of specificity. There are, of course, numerous techniques for the individual amino acids found within the protein complexes. The classic example is the Sakaguchi test for arginine. This particular test is specific for derivatives of guanidine which possess at least one unsubstituted hydrogen on each of the amino groups. Of all the amino acids found in the human body, only arginine meets these requirements under normal circumstances. The method has been modified widely since its introduction in 1925 but the principles of the reaction are still the same. Recent histochemical development of tests for the sulphydryl and the disulphide radicals are also of value in protein histochemistry. Such techniques are quite selective and may be considered histochemically reliable, especial-



ly the tetrazolium reduction and dihydroxydinaphthyldisulphide techniques.

### Lipids

The most popular and generally satisfactory histochemical localization technics for lipids are primarily physical in nature and are based on dissolving a colored dye in the tissue lipid at its site. In general, these reactions utilizing such dyes as Sudan III or Sudan black are fairly accurate within their limits of sensitivity. However, it is usually necessary to take some care in processing these tissues so that the lipids in question are not modified, dissolved out, or diffused from their normal sites by the solvents used in the procedures. Chromation during fixation will often protect the lipids from solvent action during routine processing and allow the tissues to be paraffin processed. The "plasmal" reaction for acetalphosphatides, the Nile blue method for phospholipids, and the performic acid-Schiff technic for unsaturated lipids all have some merit. The classic osmic acid, actually osmium tetroxide, used since its introduction in 1895 as a means of localizing unsaturated lipids is still very popular but the present consensus appears to be that it is a trifle too general to be considered highly selective in its localizations. The rather complex technics for keto-steroids fall into the lipid category but unfortunately recent developments have shown that these methods, based on ketone reactions, cannot be considered completely accurate. Methods for the localization of the various derived lipids including sterols and their esters and free and esterified cholesterol exist but again are open to some criticism on selectivity. The more complex histochemical technics such as fluorescence and polarized light methods are valuable in lipid work and selective extractions have merit in certain cases.

### Carbohydrates

Carbohydrates are probably the most extensively studied tissue components in the histochemical field. This is undoubtedly due to the fact that the various methods for localizing carbohydrates are among the most accurate and reliable technics known. The oxidizing procedures initially introduced into histochemistry by Hotchkiss, MacManus,

and Lillie in the later 1940's placed the localization of carbohydrates on a very firm foundation. These reactions are based primarily on the cleavage of the 1,2 glycol linkage by organic oxidants to produce aldehyde radicals which may be subsequently stained violet by leucofuchsin. Polysaccharides, within known limits, are accurately localized by these methods even in routinely fixed and processed tissues. The oxidation necessary for the reaction is usually obtained with periodic acid but other organic oxidants known to attack the 1,2 glycol linkage such as lead tetraacetate, sodium bismuthate, and phenyliodosoacetate may be used equally well. These reactions illustrate a very important point. When a reliable chemical technique is successfully modified for histochemical purposes, it will generally run true regardless of modifications of any particular part of the reaction. This point present in the 1,2 glycol cleavage series of reactions for polysaccharides, unfortunately is not true of many other histochemical methods.

In addition to the PAS (periodic acid-Schiff) technique and other 1,2 glycol cleavage methods which are believed specific for the so called neutral polysaccharides, numerous other methods do exist. For example, there is the Hale technique, modified widely in recent years, for acid polysaccharides. This method, as previously noted, is based on an iron reaction with acid radicals of the polysaccharides followed by a Prussian blue color localization. Metachromasia is also commonly used in the localization of tissue acid polysaccharides, and such dyes as Alcian blue have been widely used for this purpose. When enzyme techniques are used in a negative way to verify these metachromatic reactions, it would appear that they do possess a degree of selectivity for this particular tissue component. However, since the exact mechanism of the reaction is still in doubt, such methods are best considered "selective" rather than "specific." In addition to these reactions for polysaccharides, there are a number of empirical techniques which appear to have a great deal of selectivity. The classic example is the Best carmine method for glycogen. The exact mechanism of this technique is not understood

but the degree of selectivity obtained is striking. Thus although the reaction is not "specific" in the exact sense, its selectivity is sufficient so that it can be considered highly reliable when used with proper controls. Enzyme studies are of real value in controlling this type of localization. There are, of course, numerous other methods for carbohydrates but these are illustrative of the entire group.

### Cations and Anions

The localization of cations probably represents the purest application of analytical chemistry to histochemistry. The two cations which are most commonly studied because of their status in the tissues are calcium and iron. Other cations are occasionally localized but, in general, calcium and iron have received the most attention. Both of these elements exist in the tissues combined with other components in what are called "masked" and "unmasked" forms. A masked form is one in which the elements are so bound with organic components that they cannot be histochemically localized until released from their "bound" status. Sometimes a bound element can be released but often it is very difficult to accomplish this within histochemical requirements of maintaining architectural integrity.

The techniques for calcium and for iron have been well standardized and although they have their weaknesses, they generally possess a high degree of selectivity. For example, the alizarin method for calcium can be used to demonstrate the tissue sites with some reliability, and the von Kossa silver method is also rather accurate for demonstrating calcium. Iron, also present in both bound and unbound states, is classically localized by the Prussian blue reaction, introduced into chemistry by Perls in 1867. The exact way that these methods are applied is somewhat beyond the scope of a general discussion paper but fairly accurate localizations are possible. Techniques for unmasking certain forms of masked iron pigments are known and can be applied to make these cations histochemically visible. Masked calcium may also be freed for localization under certain circumstances.

Numerous technics also exist for other

cations. The Macallum procedure for potassium has been used widely although it does not compare with the iron and calcium methods for validity of localization. Lead, mercury, arsenic and other metals may be histochemically demonstrated but generally these are not found in the human body except in cases of medico-legal interest. Zinc and copper are found in minute quantities in the body but the localization of these two elements has not been too satisfactory with the existing methods, although recently technics have been reported as effective for zinc. Anyone interested in the details of these various methods will find them discussed at length in any major histochemical text.

The histochemical localization of anions has not been as satisfactory as the demonstration of cations, probably due to their greater solubility. Methods have been devised, of course, for various anions, especially the phosphates and carbonates normally present in the body. However, the anion technics are not too adequate and for the most part based not on chemical reactions but on physical procedures such as phase microscopy and polarized light studies. Even here these methods are only efficient if the anion is present in an insoluble form. If present in a soluble form, it is almost impossible to obtain a satisfactory localization.

### Vitamins

The localization of vitamins, with the exception of vitamin C or ascorbic acid, is not satisfactory using chemical technics, although fair localizations have been obtained utilizing physical methods. Fluorescence technics have been used with some success with vitamin A but there is still some question on the validity of the procedures. Technics have also been suggested for the B complex and vitamin D as well, but these methods are questionable even in the hands of an expert. The methods for vitamin C on the other hand, are fairly valid and are based on the reducing action of the ascorbic acid itself. Silver solutions are generally used resulting in a deposit of reduced silver at the tissue site of the vitamin. Such methods have been successfully used in studies of the adrenal gland. Disregarding vitamin C, it can be safely said that there are no routine



methods available for vitamin histochemical localization.

### **Pigments**

The histochemical category of "pigments" is somewhat artificial since they are more properly studied under their respective protein and lipid groupings. However it is traditional to include such a section so a few brief remarks are in order. Pigment studies are one of the oldest forms of histochemical endeavor. That "DOPA" methods for the tyrosine pigments, the melanins in particular, date back to the 1920's and the argentaffin and chromaffin reactions of certain cells and structures, usually classed in this category, have been known for years. The iron pigments, probably the best known in the body, are usually localized by cation techniques with the organic components being disregarded except in those cases where it "masks" the iron from the histochemical localizing reaction. Fluorescence methods are useful in pigment studies and are frequently used to supplement chemical techniques. Porphyrin localizations are a good example of this type of localization. Certain lipochrome localizations are only possible by this means. The time honoured silver and chromium reactions, previously mentioned, are so well known that no comment is required except to note that they are becoming of interest again with the revived attention to tissue argyrophilia and to the recent studies on the carcinoid tumors of the small intestine. Some pigments are visible after routine processing without actual staining, hemosiderin for example. However in practice it is usually best to perform a histochemical coloring reaction on such pigments to improve their visibility under the microscope and to differentiate them from each other on the basis of their responses to the reactions.

### **Enzymes**

Enzymes are probably the most studied group of tissue components today with at least 50% of the articles appearing presently in the histochemical journals being devoted to their localization. The techniques for enzyme studies are numerous and are frequently quite complex requiring special processing. Fixation, for example, must be

carefully handled to avoid destruction of the enzyme and in many cases a complex apparatus such as the freeze-dry must be utilized. Frozen sections are almost routine since the various steps in paraffin processing destroy almost all of the more delicate enzymes. Once in section form, however, enzyme techniques, within a broad sense, are all quite similar. The section is incubated for varying periods of time in a "substrate" solution which contains the various chemical compounds required to obtain the localization through the action of the enzyme resulting in a precipitation of a colored substance at the enzyme's site. Substrate solutions are in themselves somewhat complex and vary depending on the enzyme to be localized. The pH of the solution is often very important. In some cases the precipitate is not colored and additional steps are necessary to color it so that the tissue sites will be visible under the microscope. The finished section is then mounted in either glycerine or one of the synthetic compounds depending on the exact nature of the procedure involved. This may appear rather simple but in practice enzyme histochemical localizations are exceeding complicated and difficult. The investigator in order to obtain a valid localization must be sure that first, nothing is done during processing to destroy the enzyme, alter its nature, or diffuse it from its normal sites. Secondly, he must be sure that his method actually is selective for the enzyme in question and in addition is sufficiently sensitive to react with the minute quantities of the substance in the tissues. When the delicate nature of the average enzyme is taken into consideration it can be seen that this is no mean problem. Even when the investigator is able to obtain enzymatic localizations it is vital that careful controls be maintained since false positives and even false negatives will result with most methods now used for this purpose.

Some enzyme systems localize rather well such as the alkaline phosphatases. This group will even resist formalin fixation and paraffin processing if a few precautions are taken during the procedures. On the other hand, localizations of more delicate systems such as the dehydrogenases are quite ca-



precious and great care must be taken in their interpretation. It is most important that any person undertaking histochemical enzymatic studies understand the rationale behind the method he is using as well as having a full understanding of the nature of the enzyme under investigation. If this is done, many pitfalls and disappointments can be avoided. It is equally important to remember that with a few exceptions these methods are hardly routine laboratory procedures and must be performed by someone fully acquainted with the details of the methods and with a background of histochemical technic.

### Conclusions

Histochemistry has come a long way since its revival in 1936 by Lison. It has progressed from a stepchild of microtechnic until in many ways it has replaced the mother field in many phases of both research and routine tissue processing. Many special procedures have been developed utilizing equipment not even known a generation ago. The freeze dry apparatus, so necessary to enzyme studies, the phase contrast microscope, polarized and ultra violet light methods, are all common place in the laboratory when just a few years ago they were restricted to research centers. Unfortunately, with the rapid growth of histochemistry, many misconceptions have also developed. The use of the term "specific" in describing methods for localizations is frequently most unfortunate. "Highly selective" would usually be far more appropriate to define the character of many popular procedures and in some cases even this classification is too optimistic. Generalities have also tended to creep into histochemical terminology, such as the common statement "The periodic acid-Schiff technic is specific for polysaccharides." Taken literally, as it is by the uninitiated, such a statement can cause real confusion, since it is not true on several counts and an analysis of the mechanisms involved in the reaction make it obvious. To be precise, the PAS, as it is usually abbreviated, is specific for the *1,2 glycol linkage* which is found in polysaccharides but even here trouble can develop since the cleavage mechanism can also take place with other linkages such as the 1 glycol, 2 amino

one. However, it must be conceded that if *properly controlled*, the PAS does localize the 1,2 glycol linkage in a most highly selective manner. Hotchkiss, though, in his excellent paper on the reaction pointed out that the PAS will not give positive colorations with many tissue components known to contain this linkage. Di-saccharides, for example, are negative to this reaction (or very weakly positive). Consequently such wide sweeping statements should probably be avoided, or at least qualified, when dealing with individuals unacquainted with the field. The enzyme methods in particular require careful evaluation and any investigator using them must take the trouble to understand the mechanisms involved in the localizations. This knowledge is vital in order to make any histochemical evaluation and much of the confused data that appears from time to time in the literature might be avoided if this were done.

Histochemistry today is at a crossroads. With intelligent handling, it will progress until it can rank with the other biochemical fields as a basically exact science. However, unless care is taken to impress the investigators using histochemical technics with the necessity of understanding their procedures completely, the resulting doubtful data can do histochemistry a great injustice. Many non-histochemists, certain hospital pathologists in particular, have commonly relegated the task of performing, and in some cases even evaluating, histochemical localizations to assistants who lack full knowledge of what they are attempting to do with the tissues involved. True, many of the technics are relatively foolproof such as the PAS and Feulgen method for nucleic acids and can safely be so delegated. Other procedures, the enzyme localizations and the complex "physical" technics, are not foolproof and it is absolutely necessary to have close supervision of the processing by the chief investigator or a qualified aide. In many cases the critical steps should probably be performed by the investigator himself and in all cases, the final evaluation *must* be done by an informed individual. Otherwise trouble is inevitable.

Properly used, histochemical methods can be valuable tools in medical research. In

the past few years much has already been accomplished by this means. The role of polysaccharides in the tissues has been greatly clarified. Tissue-enzyme relationships, in spite of the weakness of some of the methods, have been most revealing. Lipoidal diseases are more fully understood as a result of differential histochemical investigations. Our understanding of the role of nucleic acids in various metabolic processes has been greatly increased. These are only few of the many advances accomplished by histochemical means. There will be many more in the future.

The author sincerely believes that much of the future of microscopic anatomy, normal and abnormal, is to be found in this field. The critical point is that the investigator utilizing this research tool must know the theoretical side of his methods with their virtues and limitations and must equally understand the nature of the substances he wishes to localize in the tissue. If this is done, he will find histochemical methods as valid and as reliable as any now available to the worker in the biologic fields, but if he does not do this, histochemistry will prove to be not a valuable asset but a Frankenstein's monster, which will cloud and confuse his research with questionable data.

### Recommended References for Additional Information

#### TEXT BOOKS

- CASSELMAN, W. G. GRUCE. *Histochemical Technic*. Methuen and Co., Ltd., London. 1958. (Excellent small text containing an up to date summarization of histochemistry as well as a good bibliography section. This monograph contains more information for its size than any other text.)
- BAKER, J. R. *Principles of Biological Microtechnic*. Methuen and Co., Ltd., London. 1958. (Excellent text on the theoretical aspects of basic microtechnic and of great value to anyone interested in Histochemical procedures.)
- DANIELLI, J. F. *Cytochemistry*. John Wiley & Sons, Inc., New York. 1953. (Discussions on various selected histochemical topics.)
- ERANKO, O. *Quantitative Methods in Histology and Microscopic Histochemistry*. 1955. Little, Brown & Co., Boston. (Advanced but excellent text on quantitative histochemical methods. May be somewhat beyond the average biologist.)
- GLICK, D. *Techniques of Histo- and Cytochemistry*. Interscience Publishers, Inc., New York. 1949.

(Somewhat dated and includes certain technics that might be better considered under "microchemistry" but contains information value.)

- GOMORI, G. *Microscopic Histochemistry*. University of Chicago Press, Chicago. 1952. (Excellent text with fine section on enzyme localizations. Also slightly dated but still very valuable.)
- GURR, E. *Methods of Analytical Histology and Histochemistry*. Leonard Hall, Ltd., London. 1958. (New text and possesses a fine reference bibliography but contains little theoretical information. Primarily a laboratory workbook.)
- LILLIE, R. D. *Histopathologic Technic and Practical Histochemistry*. The Blakiston Co., New York. 1954. (Designed as laboratory worktext but contains excellent theoretical discussions based on the author's personal experience.)
- LISON, L. *Histochimie Animale*. Gauthier-Villars, Paris. 1936. (The text that revived histochemistry. Must reading for serious students in the field.)
- LISON, L. *Histochimie et Cytochimie Animales*. Gauthier-Villars, Paris. 1953. (The second edition of Lison's historic "*Histochimie Animale*" but in the author's opinion not as select a text as the original book. However it contains much valuable information, especially on the more obscure technics, and Lison's opinions of methods are extremely important and informative.)
- McMANUS, J. F. A. "A survey of technics for the histochemical approach to pathology" in *Progress in Fundamental Medicine*, Lea and Febiger, Philadelphia. 1952. (Well written synopsis.)
- PEARSE, A. G. EVERSON. *Histochemistry, Theoretical and Applied*. J. A. Churchill, Ltd., London. 1953. (Probably the best histochemistry text now available in English. It contains theoretical discussions and has a good listing of preferred technics tested by the author.)

#### REPRESENTATIVE JOURNALS

- Stain Technology* (Published bi-monthly by the Biological Stain Commission through Williams and Wilkins, Baltimore.)
- Journal of Histochemistry and Cytochemistry* (published bi-monthly by the Histochemical Society through the Williams and Wilkins, Baltimore.)
- International Review of Cytology* (published yearly by the Academic Press, New York. and edited by G. H. Bourne and J. F. Canielli.)
- Acta Histochemica* (published in four sections a year by Gustav Fischer Verlag, Jena.)
- Annales d'Histochimie* (published in four sections a year by the Societe Francaise d'Histochimie through the Societe d'Impressions Typographiques, Nancy.)
- Histochemische Methoden* (edited by Walther Lipp and published by R. Oldenbourg, Munich, at irregular intervals.)

800 N.E. 13th, Oklahoma City, Oklahoma



## Comparative Effects of Parathyroid Extract and Turpentine Abscesses on the Serum Glycoproteins and the Polysaccharides of the Kidney

M. R. SHETLAR,\* R. PALMER HOWARD,\*\* WALTER JOEL,\*\*\* DOROTHY C. BOWLING,\*\*\*\* and CLARA L. SHETLAR\*\*\*\*\*

The American Journal of Physiology, 195: 535-538, December, 1958

Studies were made of the time relationships existing between administration of parathyroid extract to rats, the elevation of serum glycoproteins and the deposition of polysaccharide and calcium in the kidney. Statistically significant elevations of seromucoid occurred eighteen hours after the injection of turpentine and 24 hours after the first injection of parathyroid extract. These data may indicate that the effects of parathyroid extracts and turpentine on seromucoid differ. Statistically significant elevations of the serum glycoproteins other than seromucoid occurred at 36 hours in both groups. The first histochemical changes in the kidney were noted 36 hours after the first injection of parathyroid extract. Intratubular lesions were noted which contained both calcium and material which stained with periodic-acid-Schiff reagent (PAS), colloidal iron and Alcian blue. Later (48 hr. after injection) another type of lesion which stained only with PAS and did not contain calcium was noted. Consequently, no definite evidence was found for the occurrence of a polysaccharide-containing lesion prior to calcification. Only cloudy swelling of the tubules was noted in the kidneys of rats injected with turpentine. Since the injection of turpentine resulted in elevated seromucoid and other serum glycoprotein levels, it is concluded that such elevations do not result per se in kidney damage.

\*Associate Professor of Biochemistry.

\*\*Associate Professor of Research Medicine.

\*\*\*Professor of Pathology.

\*\*\*\*Research Assistant.

\*\*\*\*\*Department of Biochemistry.

## Steroid Influences upon the Lactic Dehydrogenase-DPNH Oxidase System of the Rat Uterus

ARLEY T. BEVER.\*

Annals of the New York Academy of Sciences, 75: 472-490, 1959

Investigation of the effect of several steroids administered subcutaneously to ovariectomized rats indicates that estrogens have the most potent stimulatory effect upon lactic dehydrogenase (LDH), DPNH oxidase and DPN-cytochrome *c* reductase. With three naturally occurring estrogens, the order of activity for effect upon DPNH oxidase in a 72 hour response test was (1) estradiol-17 $\beta$  > (2) estrone > (3) estriol. The order of decreasing potency for LDH promotion, however, is (1) estriol > (2) estradiol-17 $\beta$  > (3) estrone.

When estrogens are administered daily for longer than three days, a constant elevated activity level of LDH and DPNH oxidase was not maintained. Maximal activity was reached in three days with estradiol and in six days with estriol. A rapid decline then occurred to minimum levels near that of the non-treated controls. Estradiol and estriol given together appear to be antagonistic in promotion of DPNH oxidase since the activity level is near that of estriol alone.

Hypophysectomy, adrenalectomy and combined operations do not prevent or augment the initial rise in DPNH oxidase when estradiol is given. None of the three procedures prevents a subsequent fall in activity after a maximum value is reached. Adrenalectomy markedly increased the time required to obtain both maximum and minimum activity.

Ovariectomized rats were given progesterone, deoxycorticosterone acetate (DCA), and testosterone. Each steroid was administered alone and in combination with estradiol. The results showed that only progesterone and DCA significantly influence the enzyme levels. Progesterone alone increased LDH activity and depressed DPNH oxidase activity. In combination with estradiol, progesterone prevented DPNH oxidase increases elicited by estradiol. High LDH activity response to progesterone was lowered when estradiol was given simultaneously. DCA administration increased both LDH and DPNH oxidase. DCA with estradiol produced lower DPNH oxidase activity than estradiol alone.

Studies of uterine DPNH oxidase and DPN-cytochrome *c* reductase indicate both enzymes respond qualitatively and quantitatively alike to estradiol and to certain inhibitors.

\*Associate Professor of Biochemistry.

## Rapid Diagnosis of Herpes Simplex Virus Infections with Fluorescent Antibody

JOSEPH Z. BIEGELEISEN, Jr.,\* L. VERNON SCOTT,\*\* and VESTER LEWIS, Jr.,\*\*\*

Science, 129: 640, 1959

A fluorescent microscope technique is described which may prove useful in differentiating clinically similar lesions into lesions of herpes simplex virus etiology and non-herpetic lesions. Herpes simplex virus was isolated from the specimens which yielded positive fluorescence, and no virus was isolated from the specimens which yielded no fluorescence. This method of diagnosis reduces the time required at present from several days to hours and may prove to be invaluable to the dermatologist in differentiation of lesions of herpes simplex virus from those caused by other agents.

\*Communicable Disease Center, Chamblee, Georgia.

\*\*Professor of Microbiology.

\*\*\*Research Assistant, Department of Microbiology.



## Activation of the Free Wall of the Right Ventricle in Experimental Right Bundle Branch Block

LOYAL L. CONRAD, and T. EDWARD CUDDY

Circulation Research, Vol. VII, No. 2, March, 1959, pp. 173-178

Ten experiments were performed on dogs to determine if alterations in endocardial spread and right ventricular conduction occur with right bundle branch block. After right bundle branch block, accession spread radially at the earliest point activated and tangentially at later regions, endocardial activation preceding epicardial. Endocardial spread was slower after right bundle branch block. Conduction through a specialized syncytium was either absent or greatly altered. The pattern of activation of the right ventricle after right bundle branch block resembled that obtained by electric stimulation of a single endocardial point before block. After right bundle branch block, activation of the right ventricle appeared as though it proceeded from several points in a small area. The tangential pattern of spread after right bundle block precluded an estimation of right ventricular thickness by measurement of the time of onset of the intrinsic deflection. An R was recorded at all points in the ventricular wall from endocardial to epicardial surfaces. Bipolar leads did not contribute additional information.

From the Department of Medicine, University of Oklahoma School of Medicine, and the Veterans Administration Hospital, Oklahoma City, Oklahoma.

Supported in part by a grant-in-aid from the American Heart Association, National Heart Institute (Grant H-1889), and the Shipman Heart Research Fund.

## Hemagglutination with Herpes Simplex Virus I. Adsorption Studies as Evidence that the Antigen-Antibody Reaction is Specific and the Neutralizing and Hemagglutinating Antibodies Are Identical

FRANCES G. FELTON\* and L. VERNON SCOTT\*\*

J. Immunol., 80: 186, 1958

Herpes simplex virus, which by the usual technique of hemagglutination is inactive, has been shown to produce hemagglutination in the presence of specific immune serum. This virus was adsorbed onto sheep erythrocytes which had been treated with tannic acid. These tannic acid-virus treated cells agglutinated in the presence of specific immune serum.

The antibody in herpes simplex immune serum can be removed by adsorption with tannic acid treated and virus sensitized sheep erythrocytes. The removal of this antibody as demonstrated by both hemagglutination and infectivity techniques, indicate that the herpes simplex neutralizing and hemagglutinating antibodies are probably identical and that a specific antigen-antibody reaction is involved in the hemagglutination test with herpes simplex virus.

\*Clinical Laboratories, Veterans Administration Hospital, Oklahoma City.

\*\*Professor of Microbiology.

## Regents Approve Two Appointments



LOWE



CREWS

University of Oklahoma Regents have approved the appointment of Doctor Robert C. Lowe to a full-time academic position on the Medical School faculty and named Raymond D. Crews to succeed him as superintendent of University hospitals.

The transfer was effective July 1.

Doctor Lowe, superintendent the past ten years, asked to be relieved of administrative duties in order to develop a research program in the field of hospital operation.

Crews will assume the responsibility of superintendent in addition to serving as business administrator of the Medical Center, a position he has held since 1954. He also is an assistant professor of administrative medicine.

Doctor Lowe's new title is research consultant in hospital organization and administration. In addition, he is an associate professor of medicine and of preventive medicine and public health.

Crews is president of the Oklahoma Hospital association, a past-president of the Oklahoma Association of College and University Business Officers and of the Oklahoma City Hospital Council. He holds a BA degree in economics and LL.B. degree from the University of Oklahoma. The new superintendent came to the Medical Center as assistant business administrator in 1951.

Doctor Lowe, a graduate of the University of Minnesota School of Medicine, joined the Medical School faculty in 1946. Before coming here, he taught at the University of Iowa and Louisiana State University Schools of Medicine and was a research associate in psychiatry and psychosomatic medicine at College of Physicians and Surgeons, New York City.

*New wide-use dosage form*

*of the outstanding  
anticholinergic-antispasmodic*

# PRO-BANTHINE<sup>®</sup> TABLETS (HALF STRENGTH)

Pro-Banthine (Half Strength) has been especially designed for your prescribing convenience.

This new form provides flexibility of dosage from low levels of one tablet t.i.d. for patients with minimal distress, to one or two tablets every 2 or 3 hours for those with more pronounced symptoms.

Primary indications are gastrointestinal spasm, bladder spasm, maintenance therapy of peptic ulcer and "irritable bowel" syndrome. The lower dosage also has a field of usefulness in smooth muscle spasm of children and geriatric patients.

*when your prescription reads—  
℞ Pro-Banthine Tablets (Half Strength)  
—the pharmacist will dispense this new size (7½ mg.)*

**PRO-BANTHINE** (*brand of propantheline bromide*)

**Dosage forms:**

Pro-Banthine tablets (15 mg.)  
Pro-Banthine tablets (Half Strength) (7½ mg.)  
Pro-Banthine ampuls (30 mg.)

G. D. Searle & Co., Chicago 80, Ill. *Research in the Service of Medicine.*

# PRESIDENT'S LETTER



If any doctor has a tendency to allow the heritage of this great profession to create an overwhelming sense of self-righteousness, it might be well to remember the words of Robert Burns:

"O wad some power the giftie gie us

To see oursel's as ithers see us!"

—And then read "The Doctor Business" by Richard Carter.

Such chapters as "Dollar Doctrine", "Medical Democracy", "Medical Delinquency", "Scandal in the Coal Fields", "AMA vs. Government", are apt to stimulate thought and wonder.

If individually and as a profession, we could attain the exalted concepts we have of ourselves, the realization of such an image would be the answer to most criticisms such as are made in this book.

A handwritten signature in cursive script that reads "Alfred T. Baker M.D.".

ALFRED T. BAKER, M.D.  
President



## Oklahomans Provide National Leadership for Medical Assistants

Nearly one hundred persons paid tribute to Mrs. Lucille Swearingen, President of the American Association of Medical Assistants from Bartlesville, and Leo J. Starry, M.D., National Advisor from Oklahoma City, when the state chapter of the organization held a reception and tea on July 19 at the Oklahoma Medical Research Foundation. Invitations were sent to all medical assistants, their physician-employers, state medical association officers and staff, and all Oklahoma County physicians.

Oklahoma is singularly honored to have had two such national office holders chosen from its ranks.

Mrs. Swearingen is the third national president of the youthful association which now has a membership of over 7500 assistants, representing twenty states. Her elevation to the position of national prominence represents the culmination of ten years' active interest and leadership in the Oklahoma Medical Assistants Society.

An employee of Doctors Lockard and Wallingford, Bartlesville, Mrs. Swearingen has served her state organization as President, Vice-President, Corresponding Secretary, Parliamentarian and member of the Executive Board. She has also served as Oklahoma's representative on the national Board of Directors.

Doctor Starry was appointed as one of six-physician-advisors to the national group in 1957 and is now completing his last year in this capacity. During his term of office, he has attended national conventions of the association in San Francisco and Chicago, and now plans to participate in the next annual meeting which is scheduled for Philadelphia, October 16, 17 and 18, 1959.

### The AAMA

The organization reached a milestone in

its maturity last April when a national headquarters office was opened in Chicago and a full-time executive secretary employed. Article two of the group's constitution explicitly sets forth the aims of the organization:

(a) To inspire its members to render honest, loyal and more efficient service to the profession and to the public which it serves.

(b) To strive at all times to cooperate with the medical profession in improving public relations.

(c) To render educational services for the self-improvement of its members and to stimulate a feeling of fellowship and co-operation among the societies.

(d) To encourage and assist all unorganized medical assistants in forming local and state societies.

(e) This organization is hereby declared to be non-profit. It is not nor shall it ever become a trade union or collective bargaining agency.

The AAMA has the full blessing and co-operation of the American Medical Association. It is the only group of its type to achieve this recognition.

An extremely interesting and informative program has been planned for the Third Annual Convention in Philadelphia. Among those slated to address the group are: Louis M. Orr, M.D., President, American Medical Association; Hugh W. Brenneman, Public Relations Counsel for the Michigan State Medical Society; Leonard Berry, author of "Magic With Words"; and a panel discussion on such subjects as "Office Psychology", "RH Factor", "Hypnosis In Medicine" and "Advances In Cancer".

## **OAGP and Medical Center Plan Symposium**

A symposium on Medical and Surgical Problems in the Senior Citizen will be conducted by the Oklahoma Academy of General Practice and the University of Oklahoma Medical Center, Friday, October 2, at the Skirvin Tower Hotel in Oklahoma City.

Seven eminent guest speakers will appear on the program, discussing problems in rehabilitation, cardiovascular disease, diabetes, operability, and use of steroids. Lederle Laboratories is co-sponsoring the conference.

The scientific program will consist of six papers, three to be presented in the morning and three in the afternoon with each session to be followed by a question-answer period.

Luncheon speaker will be Leo M. Wachtel, Jr., M.D., Jacksonville, Fla., whose talk is entitled "People Who Live in Glass Houses, Shouldn't." Doctor Wachtel is a past-president of the Florida Academy of General Practice and a member of AAGP's Commission on Hospitals. He has been in general practice in Jacksonville since 1940.

Lecturers and their topics are:

Walter L. Arons, M.D., chief of the Endocrine Clinic at Stanford University, "What Answers Have Steroids for Problems Peculiar to the Aged?"

Bentley P. Colcock, M.D., of the surgical staff of the Lahey Clinic, New England Baptist and New England Deaconess hospitals, Boston, Mass., "Gastrointestinal Hemorrhage of the Aged."

William Requarth, M.D., assistant professor of surgery at the University of Illinois College of Medicine and attending surgeon, University of Illinois Research Hospital and West Side Veterans Hospital, Chicago, "Evaluation of Operability of the Older Patient."

John W. Gofman, M.D., Ph.D., professor of medical physics and clinical instructor in medicine, University of California Medical School, "Prediction of Myocardial Infarction."

Leo P. Krall, M.D., member of the senior staff of the Joslin Clinic and New England Deaconess Hospital, Boston, and consultant to the U.S. Public Health service, "Oral Control of Diabetes Mellitus—The When and Why."

Donald A. Covalt, M.D., associate director, Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center and associate professor in the Department of Physical Medicine at NYU College of Medicine—"Down-to-Earth Care of the Stroke Patient."

Doctor Covalt is a consultant to the Department of Health, Education and Welfare's Office of Vocational Rehabilitation and to a number of rehabilitation centers.

Roger Reid, M.D., Ardmore, president of the Oklahoma Academy of General Practice, will preside at the noon luncheon. Sessions will be in the Persian Room.

Moderator for the morning program will be Stewart G. Wolf, M.D.; the afternoon session, Gilbert S. Campbell, M.D. Doctor Wolf is head of the department of medicine and Doctor Campbell, professor of surgery, at the University of Oklahoma Medical Center.

## **New York Site for International Congress on Occupational Health**

Plans are being formulated for the 13th International Congress on Occupational Health to be held in New York City in 1960, the first ever scheduled in the Western Hemisphere. About 2,500 physicians, nurses, industrial hygienists and other delegates from more than 50 countries are expected at the congress which will be held from July 25 through July 29th.

All previous meetings have been held in Europe, beginning with the first one in Milan in 1906. The 12th congress was in Helsinki in 1957.

The congresses on occupational health are sponsored by the Permanent Committee and International Association on Occupational Health of which Doctor Sven Forssman, of Stockholm is president and Doctor Enrico Vigliani of Milan, is secretary.



Headquarters for the 13th Congress will be in the Waldorf-Astoria Hotel, where all sessions will be held. Plans for translation services, accommodations for the visitors and other arrangements were begun last year.

Theme of the New York meeting will be prevention, rather than cure and program participants from the many countries will report on their experiences, the findings of both clinical and laboratory research, and on methods of control of occupational health hazards. Important knowledge in the fields of occupational injury and disease will be shared by experts of many nations.

James W. Muckell, of White Plains, New York, who has served as conference planning officer for the United Nations General Assembly sessions, both here and abroad, has been named executive secretary for the 13th Congress.

### **Southwestern Surgical Congress Announces Essay Contest**

The Southwestern Surgical Congress announces its Second Annual Essay Contest.

The Contest is open to internes, residents and M.D.'s in active training in general surgery or the surgical specialties, who have been in private practice no more than three years beyond completion of resident, interne and post-graduate training. Eligibility is further restricted to those individuals who are within the geographical confines of the Southwestern Surgical Congress.

The subject material for the competitive essays shall be either pure investigative or scientific research, or clinical research and investigation, which shall consist wholly or largely of the essayist's contributions. The work is intended to encourage original study and investigation on the part of the essayist himself.

The first prize will be \$300.00, second prize \$200.00, and third prize \$100.00. The essayists whose papers are selected to be read, will be the invited guest of the Southwestern Surgical Congress to their Twelfth Annual Meeting in Las Vegas, Nevada,

March 28, 29, 30, 31, 1960, this to include the essayists wives. This includes lodging, meals and the social functions of the organization, but does not provide transportation to and from the meeting.

Interested persons please contact John A. Growdon, M.D., 1324 Professional Building, Kansas City, Missouri.

### **Leading Surgeons to Speak for International College of Surgeons**

Leading surgeons from many parts of the free world will present scientific papers at the 24th annual Congress of the North American Federation, International College of Surgeons, to be held at the Palmer House, Chicago, September 13-17.

Among the special features will be military reports on medical operations and research in climatic and environmental extremes, to be presented by six Navy medical officers. Their reports will cover the problems of space flights and prolonged stays in frigid zones, tropical climates, or under water.

Prof. Doctor Andre Thomas of the Faculty of Sciences, the Sorbonne, Paris, inventor of an artificial pulmonary membrane, will give a demonstration of progress in artificial cardiopulmonary circulation and the physiological and surgical results obtained from the use of his instrument.

The annual Acuff Memorial Lecture will be presented by Prof. Doctor Sten Friberg, Professor of Surgery, University of Stockholm, Sweden.

Among other foreign speakers of note and their subjects will be: Doctor Ralph B. Cloward, Honolulu; Chief Surgeon, Queens and St. Francis Hospitals—"Surgery of the Cervical Intervertebral Disc and Fusion of the Cervical Spine from an Anterior Approach"; Doctor Jean Creysell, Lyons, France; President of the French Section, I.C.S.—"Necrosis in Closed Injuries, Particularly Those of the Head of the Femur"; Doctor Raymond Darget, Bordeaux, France; Professor of Urology, University of Bordeaux—"Extensive Tumors of the Bladder"; Doc-



tor Mario Gonzales-Ulloa, Mexico City; Director of the Sanatoria Dalinde—"Procedure for the Integral Correction of the Human Profile"; Doctor Hajime Imanaga, Nagoya, Japan; Professor of Surgery, Nagoya University—"Surgical Treatment of Portal Hypertension"; Doctor Alfonso de la Pena, Madrid; President of Spanish Section, I.C.S., and Professor of Urology, Faculty of Medicine—"Coxi Anal Prostatectomy"; Doctor Jose Ramirez, D., Guayaquil, Ecuador; Founder and Vice President of the Ecuador Section, I.C.S.—"Role of Pelvic Exenteration in Treatment of Pelvic Cancer"; Doctor Esteban D. Rocca, Lima Peru; Professor of neurosurgery, National Medical University—"Surgical Management of Cysticercus Cysts of the Brain"; Doctor Hans Selye, Montreal; University of Montreal—"Stress and the Adaptation Syndrome"; Mr. John Swinney, Newcastle upon Tyne, England; Lecturer in Urology, Medical School, King's College, University of Durham—"Treatment of Strictures of the Urethra and Its Sequelae"; Doctor Jorge A. Taiana, Buenos Aires; former dean, University of Buenos Aires—"Bronchial Adenoma"; Doctor Pierre Jean Viali, Paris; Head of the Clinique d'Alma—Subject to be announced; Mr. Charles P. Wilson, London; Senior Surgeon, ENT Department, Middlesex Hospital—"The Value of the Transpalatal Approach to the Nasopharynx".

Besides general assembly programs, there will be sectional meetings covering all the principal surgical specialties. A postgraduate instructional course in orthopedic surgery also will be presented. A scientific motion picture program will demonstrate latest techniques in surgery.

Senator Joseph Lister Hill (D. Ala.) and Senator Hubert H. Humphrey (D. Minn.) will be speakers at nonscientific events. A special program to which lay leaders will be invited also is planned.

The annual banquet will be given on Wednesday evening. The induction of new fellows will take place Thursday evening in the Chicago Civic Opera House.

The North American Federation comprises the United States, Canada, Mexico,

Cuba, Haiti, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama.

Further information may be had by writing to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

## **Pediatric Conference Planned By Hillcrest Medical Center**

Hillcrest Medical Center in Tulsa has completed plans for a Dedicatory Pediatric Conference to be held September 25-26, 1959. The conference will be held in connection with the opening of the new six-floor Mabee Children's Hospital wing, built with a \$2 million gift from the J. E. and L. E. Mabee Foundation.

The conference will have the following faculty: James C. Overall, M.D., President of the American Academy of Pediatrics and Professor of Pediatrics, Vanderbilt University School of Medicine, Nashville; Frederick C. Robbins, M.D., Nobel Laureate and Professor of Pediatrics, Western Reserve University School of Medicine, Cleveland; Theodore Panos, M.D., Professor of Pediatrics, University of Arkansas School of Medicine, Little Rock; Herbert C. Miller, M.D., Professor of Pediatrics, University of Kansas School of Medicine, Kansas City; and Harris D. Riley, M.D., Professor of Pediatrics, University of Oklahoma School of Medicine, Oklahoma City.

A group of faculty members from the University of Oklahoma School of Medicine will comprise a panel which will appear during the conference.

Social events planned for the participants of the meeting will include golfing on Friday afternoon and a dinner and social hour on Friday evening. On Saturday evening, those attending will have an opportunity to attend the season's first college football game when Tulsa University meets New Mexico A. and M. Special events have been planned for the ladies.

Additional information and reservations forms are available by writing to Hillcrest Medical Center, Tulsa, Oklahoma.

# Coming Meetings

## Oklahoma Chapter

### AMERICAN ACADEMY OF GENERAL PRACTICE

September 13, 1959

Lake Murray Lodge

Ardmore, Oklahoma

The Sixth Annual Meeting of the Red River Valley Section, Oklahoma Chapter, American Academy of General Practice, will be held at Lake Murray Lodge, Ardmore, September 13, 1959. Participants will receive four hours credit, Category 1. For further details, write to Roger Reid, M.D., 1001 15th, N.W., Ardmore, Oklahoma.

### OKLAHOMA ACADEMY OF GENERAL PRACTICE SYMPOSIUM

October 2, 1959

Skirvin Hotel

Oklahoma City

The Oklahoma Academy of General Practice, the University of Oklahoma Medical Center and Lederle Laboratories will present a Symposium on "Medical and Surgical Problems in the Senior Citizen," to be held October 2, 1959 in the Skirvin Hotel, Oklahoma City. Further information may be obtained by writing to Nolen Armstrong, M.D., President, Oklahoma City District, A.A.G.P., 2925 N.W. 50th, Oklahoma City, Oklahoma.

### THE UNIVERSITY OF TEXAS POSTGRADUATE SCHOOL OF MEDICINE

Course in Cardiology

December 7-11, 1959

Texas Medical Center

Houston, Texas

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959 will be Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London). The guest lecturer from London will present a course in cardiology at the Texas Medical Center December 7-11.

For further information write to Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

### 24th Annual Congress INTERNATIONAL COLLEGE OF SURGEONS

September 13-17, 1959

Chicago

The 24th Annual Congress of the North American Federation, International College of Surgeons, will be held in Chicago, September 13-17. The federation is

composed of the United States, Canadian, Mexican, and Central American Sections. For information, write to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

### 13th ANNUAL SOUTHWEST REGIONAL CANCER CONFERENCE

September 20, 1959

Fort Worth, Texas

The Fort Worth Academy of Medicine will present the 13th Annual Southwest Regional Cancer Conference on September 20, 1959, under the sponsorship of the Tarrant County Medical Society and the Tarrant County Unit, American Cancer Society. Further information may be obtained from the Tarrant County Medical Society, Fort Worth, Texas.

### AMERICAN HEART ASSOCIATION

32nd Annual Scientific Sessions

Trade and Convention Center

October 23-25, 1959

Philadelphia, Pennsylvania

The 32nd Annual Scientific Sessions of the American Heart Association will be held at the Trade and Convention Center in Philadelphia, October 23-25, 1959. Forms for registering and for reserving accommodations are now available from the Association, 44 East 23rd Street, New York 10, New York.

### INTERNATIONAL COLLEGE OF SURGEONS

November 16, 17, 18, 1959

Hot Springs, Virginia

The Mid-Atlantic Meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia on November 16, 17, 18, 1959. For further details contact: E. G. Gill, M.D., State Regent, International College of Surgeons, 711 South Jefferson Street, Roanoke, Virginia.

### 44th SCIENTIFIC ASSEMBLY

Interstate Postgraduate Medical Association

November 2-5, 1959

Palmer House

Chicago, Illinois

The 44th Scientific Assembly of the Interstate Postgraduate Medical Association will be held in the Palmer House, Chicago, Illinois, November 2-5, 1959. Advance registration fee of \$10.00 should be mailed to Erwin R. Schmidt, M.D., Box 1109, Madison 1, Wisconsin. Hotel reservations should be directed to the Palmer House, Chicago.



## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**MEDICAL PROFESSIONAL LIABILITY**—The Superior Court of New Jersey sustained a verdict of \$56,000 against a general practitioner. The Court found that the physician had negligently treated the plaintiff with mycifradin (neomycin), an antibiotic, and that as a result of this negligent treatment the plaintiff, who was forty-eight years old, would be deaf and tormented by tinnitus for the rest of his life. The defendant admitted he had never used the drug before using it on the plaintiff. He insisted that in all substantial respects he followed the manufacturer's directions. The evidence showed that the plaintiff had indications of "intrinsic renal disease" or "impaired renal function." The manufacturer's brochure warned that "under such conditions the benefits that may be derived . . . should be weighed against the possible development of deafness." The plaintiff's expert testified that in such a case the drug should be used only in cases of extreme urgency. The defendant conceded at the trial that "it was not an emergency."

The Supreme Court held that "the jury had the right to conclude not only that the defendant did not know precisely what organism was ailing plaintiff, but in addition that he failed to exercise reasonable care to find out whether the drug would do any good."

*Marchese v. Monaco*, 145 A. 2d 809  
(N. J., Nov. 10, 1958).

**PHYSICIAN HELD NOT GUILTY OF MALPRACTICE FOR PATIENT'S ILLNESS FOLLOWING TETANUS ANTITOXIN INJECTION**—The Supreme Court, Trial Term, Kings County, Part III, held that a city hospital physician was not guilty

of malpractice where the patient, who had received an injection of tetanus antitoxin after sustaining an eye injury, became ill with serum poisoning. The Court found that the physician had administered a scratch test. The Court said that under the circumstances it was accepted practice to administer the antitoxin and that "the doctor was therefore compelled to risk a possible allergic reaction in the absence of any clearly positive indication from the scratch test."

*Gorlin v. Naster Contracting Corporation*, 180 N.Y.S. 2d 84 (N.Y., Oct. 20, 1958).

**MEDICAL PROFESSIONAL LIABILITY-UNCONDITIONAL RELEASE**—The Supreme Court of New Jersey reversed a summary judgment for a defendant physician and remanded the case for trial. The lower Court held that when the plaintiff, who had been injured in an automobile accident, settled his suit against the original tortfeasor and executed an unconditional release, he barred himself from an action of medical malpractice against the physicians who treated him for these injuries.

The Supreme Court in reversing this decision ruled that the plaintiff was entitled to bring an action against the physicians unless it appeared that he had been fully compensated or that the release was specifically intended to absolve them.

*Daily v. Somberg*, 146 A. 2d 676 (N.J., Dec. 1, 1958).

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



# Organization News



## Delegates Say No to Service Contract for Old Folks

Oklahoma's House of Delegates has squelched a proposal to offer a service-type prepaid health coverage program to the low income elderly. The action came at a special meeting of the policy-making body which was held in Oklahoma City on August 2.

On the preceding day, the Council of the OSMA also disapproved of the proposal developed through the joint efforts of the Blue Cross-Blue Shield Liaison Committee and the Insurance and Retirement Sub-Committee (Committee on Aging). In backing up the Council action, the Delegates reverted to their long standing opposition to a service contract, regardless of age group.

Principle opposition to the measure came from those who questioned the wisdom of self-committment to a below-par fee schedule. It was the majority feeling that such a concession, even on behalf of the elderly, would inadvertently lead the public to be-

lieve that the reduced fees would be an acceptable rate of pay for other special interest groups.

In lieu of endorsement of the service contract, the Delegates reaffirmed their previous (April 19) expression of willingness to assist the retired elderly in the financing of health care costs and opened the door for the development of an indemnity program with expanded age limits.

The committee was instructed to continue its study along indemnity lines and to devote its effort to the development of a program for physician services, without assuming responsibility for hospital coverage. The Delegates further suggested that subsequent plans be screened by the Council before re-submission to the higher group.

### The Rejected Plan

Ground rules of the proposed plan called for the provision of thirty days of medical and hospital benefits per year and set in-

come limits (those below the limits would receive service benefits) of \$2400 per year for an individual and \$4500 per year for a couple.

The plan also restricted service benefits to those who had a net worth, excluding homestead, of less than \$9,000.

In-hospital service benefits would have covered such services as full charges on semi-private room accommodations, general nursing, drugs, laboratory, and other supplies and services normally covered by the Blue Cross contracts. An allowance of \$10.00 per day would have been paid toward private room charges.

A complete range of surgical services would have been compensable at approximately 50% of the Oklahoma Medicare fee schedule. The physician could not bill additional charges if the patient fell below the income and net worth ceilings. Anesthesia and radiology benefits would also be based upon approximately 50% of Medicare.

Payment for in-hospital medical care for non-surgical cases was increased above the 50% rate to compensate for the preponderance of medical cases to be found in this age group. Rates for such care were set at \$7.00 for the first day, \$5.00 for the second day, \$4.00 each for the next thirteen days and \$3.00 each for the last fifteen days.

A unique feature of the plan was the arrangement proposed in the event of in-hospital medical care and surgery during the same period of hospitalization. In such cases, the greater fee would be provided and payment for lateral or consultive services to a second physician would be deducted from the greater fee, up to 50% of such fee.

For example, if a surgeon performed a \$100 procedure, but found it advisable to seek consultation from an internist, the internist could receive up to \$50 of the maximum allowable. The surgeon would then receive \$50 for his services.

The proposal excluded such services as home and office visits, cosmetic surgery, custodial care, most clinical lab work and

diagnostic x-ray, and also drew the line on pre-existing conditions, TB, dental work, alcoholism, drug addition and chronic mental and nervous disorders. Acute neuro-psychiatric care would be covered on an in-hospital basis for the first fifteen days.

Cost of the proposed plan would be \$6.45 per person per month. The reduced rate was not only made possible through the reduced physician's fees, but also by the Oklahoma Hospital Association's agreement to accept payment on an "out-of-pocket" expense basis.

The group which drafted the proposal also recommended that any abuses of a prepayment program for this age group be met with immediate and effective medical society action. Specifically, they suggested that county utilization rates be published periodically in the *Journal* and *OSMA-Scope* and recommended disciplinary procedure which would channel grievances through the Blue Cross-Blue Shield Liaison Committee to the County Society. If results were not obtained thusly, the matter in question would be finally referred to the Grievance Committee.

#### **AMA Request for Action**

At the 1958 mid-winter meeting of the American Medical Association in Minneapolis, the AMA House of Delegates took recognition of the problem of an aging population (the number of persons over 65 is increasing at twice the rate of the general population) and took the following action:

" . . . That the American Medical Association, the constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the group over sixty-five with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group, which will permit the development of such insurance and prepayment programs at a reduced premium rate."



In conformance with the AMA action, the OSMA committees, already concerned with the problems of the aged, held a series of meetings, explored many alternatives and, finally, submitted several general recommendations to the OSMA delegates during the 1959 annual meeting. The recommendations called for the development of a service-type health insurance program for the aged group of limited means and stipulated that physicians and hospitals would be compensated at the highest possible rates in keeping with a saleable premium.

The House of Delegates gave tentative endorsement to the idea and asked the joint committee to develop a specific proposal and submit it to the governing body within ninety days for final judgment.

The committee then set about the development of such a program. Plans from other states were studied and numerous meetings were held with representatives of voluntary prepayment plans and commercial health insurance carriers. The final product of these deliberations was the proposal to offer service coverage to the aging through the voluntary prepayment system.

#### **Other States**

The House of Delegates' turndown of the proposal places Oklahoma in a similar position as Texas in breaking away from the pattern being set by most other state societies. When the AMA action was taken in Minneapolis, only eight medical society sponsored Blue Shield Plans had coverage available on initial enrollment for persons over the age of 65. Since then the existing plans have been joined by seventeen additional plans, most of them on a service basis, and today there are twenty-five Blue Shield Plans in twenty-three states which have developed and are offering programs for the aged.

In twenty-three other areas, medical societies are currently working with their plans to define the elements of care to be provided and to establish the scope of benefits to be offered.

## **Public Hearings Concluded On Forand Bill**

Despite promises to the contrary, Representative Wilbur Mills (D., Arkansas), Chairman of the House Ways and Means Committee, yielded to AF of L-CIO inspired pressure and allowed public hearings on HR 4700 during the last weeks of the 86th Congress. Organized medicine joined forces with other groups in opposing the socialistic legislation by launching a nationwide write-in campaign to members of the House of Representatives, especially those serving on the committee, and by parading a select group of witnesses before the lawmakers.

The purpose of the push for late-session activity was thought by informed observers to be a methodical sampling of public opposition and support of the bill. Supporters of the bill desired to place it before the public to test the reaction and thereby polish the proposal for another onslaught during the next congressional session. Despite the progress being made through private industry and the effective testimony presented against the bill, Washington observers feel that the measure will be extremely difficult to defeat during an election year.

HR 4700 represents the second legislative attempt to pass the politically and socially motivated measure which would provide up to 120 days per year of hospital, medical, dental and nursing home care for recipients of social security who are over age 65. The first attempt, which occurred during the 85th Congress, was shelved in the same committee by Chairman Mills, but without benefit of the publicity of public hearings. Union-supported members of the House of Representatives then made some benign changes in the provisions of the bill and once again offered it for unsuspecting public consumption.

#### **Who Said What**

During the five days of the hearings, a total of sixty-four witnesses appeared before the Committee, 28 of which testified in favor of the bill, 32 against and four took no position but to merely offer amendments.

The major witnesses testifying for the proposal were Nelson Cruikshank, AFL-CIO; Douglas J. Brown, Dean of the Faculty



of Princeton University; Wilbur Cohen, representing the American Public Welfare Association; Walter Reuther, United Automobile Workers; and Leo Price, testifying for the United Ladies Garment Workers Union.

Among the principal witnesses representing non-medical opponents of the bill were Arthur S. Flemming, Secretary of the Department of Health, Education and Welfare and representatives of the American Farm Bureau Federation, the United States Chamber of Commerce, the Health Insurance Association of America, the American Life Convention, and the Life Insurance Association of America.

Medical associations and allied groups testifying against the bill were the American Medical Association, the American Academy of General Practice, the American Society of Internal Medicine, the American Nursing Home Association, the American College of Pathology, the American Pharmaceutical Society, the American Dental Association, the Blue Shield Commission, and twelve state medical associations (Oklahoma yielded its time allocation in favor of another state which had a congressman serving on the Committee).

The American Nurses Association and the Physicians Forum testified in favor of the bill. Vague testimony of the American Osteopathic Association and the American Podiatry Association offered no position on the bill, but simply asked that their members be included among those qualified to render care.

#### **The Administration Speaks**

Highlighting the hearing was the testimony of Mr. Flemming, on behalf of the HEW, who represented the thoughts of the Administration when he appeared as the kickoff witness.

He delivered a strong statement in opposition to the bill, contending that the measure would establish a course from which there would be no turning back—that health coverage of the aged would “become frozen in a vast and uniform governmental system, foreclosing future opportunity for private groups—non-profit and commercial—to demonstrate their capacity to deal with the problem.” Fleming said the objective of providing the aged with adequate medical

care should be achieved through individual and organized voluntary action. He predicted that 70% of the aged social security beneficiaries would have some form of health insurance by 1965.

#### **AMA Testimony**

Doctor Leonard W. Larson, Chairman of the AMA Board of Trustees, and Doctor Frederick C. Swartz, Chairman of the AMA's Committee on Aging, declared that the Forand Bill would result in poorer—not better—health care for the American people. They emphasized that voluntary methods are meeting the challenge of an expanding aging population and will continue to meet the challenge, given the continued opportunity.

The two AMA officials were joined by thirty-three state medical societies in urging the House Ways and Means Committee to reject the controversial Forand legislation to finance health care for the aged through higher social security taxes. A number of the states had representatives appear before the legislators while the others filed written statements with the committee for inclusion in the printed record of testimony.

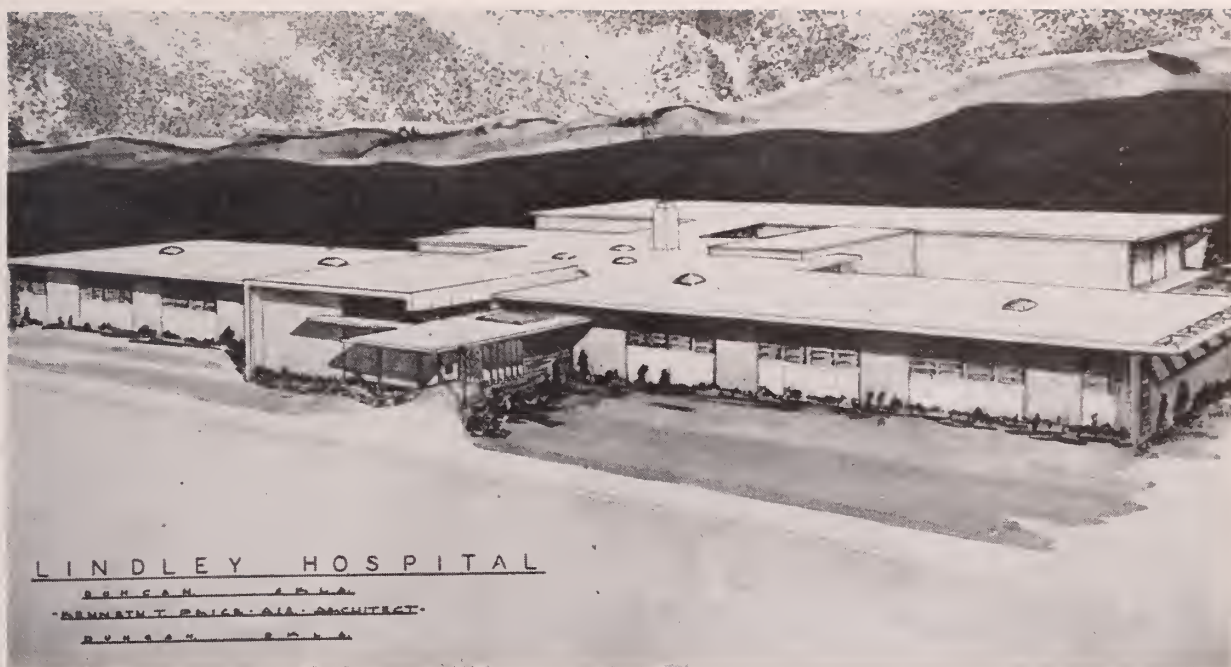
#### **Unamiable Aime**

Representative Aime J. Forand (D., Rhode Island), author of the bill, was present at all times and usually had either a comment or question for each witness. For the most part, he did not question witnesses concerning the merits of the bill or their statements, but rather engaged in a discussion of collateral issues. As an example, his questioning of AMA witnesses revolved around the “lobbying” activities of organized medicine.

He also indicated on numerous occasions that he had no intentions of giving up the fight and stated at the conclusion of the hearings, “I am hopeful of action (on the bill) early next year.”

#### **OSMA Activities**

Under the leadership of the OSMA's National Legislative Committee, the association filed a written statement with the committee and was joined by fourteen county medical societies which mailed in resolutions to the legislators. In addition, over five hundred Oklahomans, both physicians and layman, personally contacted their U.S. Representative and Chairman Mills.



## Lindley Hospital Opened in Duncan

### Tenants Listed for the New Pasteur Building

Listed among the Oklahoma City physicians who moved into the new Pasteur building, 1111 North Lee, on August 1 are: M. B. Ballina, M.D., M. Thomas Buxton, Jr., M.D., Karl K. Boatman, M.D., William L. Bond, M.D., James S. Boyle, M.D., C. Alton Brown, M.D., David R. Brown, M.D., N. F. V. Barkett, M.D., Earl M. Bricker, M.D., R. E. Carpenter, M.D., Ralph C. Denny, M.D., John R. Danstrom, M.D., Robert B. Howard, M.D., William E. Hood, M.D., Minard F. Jacobs, M.D., Herbert Kent, M.D., Robert W. Kahn, M.D., A. C. Lisle, Jr., M.D., Richard B. Lincoln, M.D.

Also moving were: LeRoy Long, M.D., David C. Lowry, M.D., Elmer R. Musick, M.D., Carter H. Moody, M.D., Haven W. Mankin, M.D., Sam N. Musallam, M.D., Milam F. McKinney, M.D., Thomas E. Nix, Jr., M.D., Charles M. O'Leary, M.D., James B. Pitts, Jr., M.D., Joe M. Parker, M.D., Thomas C. Points, M.D., Moorman P. Prosser, M.D., James R. Reed, M.D., Bob Rutledge, M.D., Clarence Robinson, M.D., Ralph A. Smith, M.D., Charles E. Smith, Jr., M.D., William T. Snoddy, M.D., William Best Thompson, M.D., and Paul M. Vickers, M.D.

The new Lindley Hospital in Duncan was formally opened April 12. The \$270,000 structure, located at 10th and Peach Street, covers 18,000 square feet.

Of modern design, the building is constructed of pink face brick over a steel frame and masonry walls. The only wood in the building is used in the doors and walnut paneling of the reception room. Interior walls are plaster over metal.

The 51-bed hospital has 28 patient rooms, including 21 semi-private rooms and seven private rooms. Each room has a private bath, telephone and is equipped with oxygen. A Muzak system has been installed throughout the hospital.

A picture window divides the main lobby and the planitarium where ferns and tropical plants are growing. A three-tier fountain decorates one wall of the reception room.

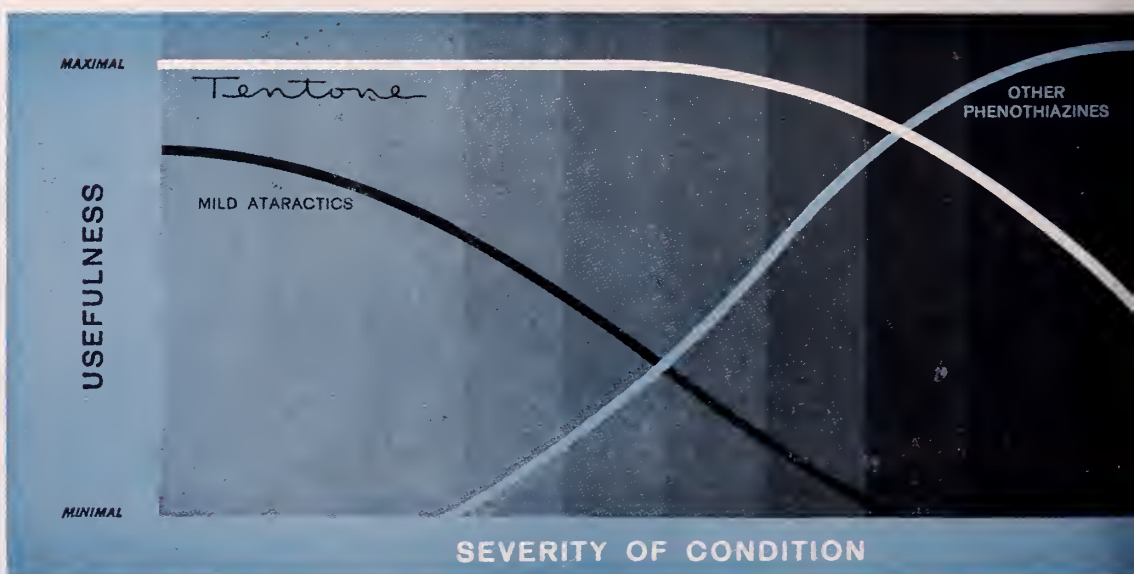
In addition to the patient rooms, there is an operating room, recovery room, nursery and chapel. Parking facilities for 50 cars have been provided.

Staff of the new hospital includes: E. C. Lindley, M.D., E. H. Lindley, M.D., and D. C. Ryan, M.D.

Architect for the structure was Kenneth T. Price, Sr., Duncan.

new... highly effective tranquilizer

Comparison of TENTONE usefulness





...for extended office practice use

Tentone

Methoxypromazine Maleate

LEDERLE

NEW PHENOTHIAZINE COMPOUND FOR THE LOWER AND MIDDLE RANGE OF DISORDERS

◆ Positive, rapid calming effect in mild and moderate cases.  
◆ Striking freedom from organic toxicity, intolerance, or sensitivity reaction—particularly at low dosage. ◆ Greater freedom from induced depression or drug habituation. ◆ May be useful, as with other tranquilizers, to potentiate action of analgesics, sedatives, narcotics. ◆ Facilitates management of surgical, obstetric, and other hospitalized patients. ◆ Indicated when more than a mild sedative effect is desired...and less than psychosis is involved. ◆ Dosage range: *In mild to moderate cases:* from 30 to 100 mg. daily. *In moderate to severe cases:* from 75 to 500 mg. daily.

**LEDERLE LABORATORIES**, a Division of **AMERICAN CYANAMID COMPANY**, Pearl River, New York



Supplied



10 mg. tablets



25 mg. tablets



50 mg. tablets

## Plans Announced for Oklahoma City Clinical Society

The Twenty-Ninth Annual Conference of the Oklahoma City Clinical Society will be held in the Biltmore Hotel, October 26, 27, and 28, 1959. Features of the meeting will include: general assemblies, clinical pathologic conference, roundtable luncheons, specialty lectures, dinner meetings and commercial exhibits.

Fifteen guest lecturers have been secured for the three-day conference. Speakers and their fields of medicine include: Robert H. Barter, M.D., Washington, D.C., Gynecology; John A. Campbell, M.D., Indianapolis, Indiana, Radiology; Wm. M. Christopher-son, M.D., Louisville, Kentucky, Pathology; George M. Haik, M.D., New Orleans, Louisiana, Ophthalmology; M. Digby Leigh, M.D., Los Angeles, California, Anesthesiology; Daniel W. Lewis, M.D., Philadelphia, Pennsylvania, Medicine; H. Relton McCarroll, M.D., St. Louis, Missouri, Orthopedic.

Also appearing will be: Robert M. Moore, M.D., Galveston, Texas, Surgery; Roy T. Parker, M.D., Durham, North Carolina, Obstetrics; Frederick C. Robbins, M.D., Cleveland, Ohio, Pediatrics; Sam H. Sanders, M.D., Memphis, Tennessee, Otolaryngology; John H. Talbott, M.D., Buffalo, New York, Medicine; Gershom H. Thompson, M.D., Rochester, Minnesota, Urology; Rupert B. Turnbull, M.D., Cleveland, Ohio, Surgery; and J. Walter Wilson, M.D., Los Angeles, California, Dermatology.

Registration fee of \$20.00 includes all features. Further information may be obtained by writing to Executive Secretary, 503 Medical Arts Building, Oklahoma City, Oklahoma.

## Three Oklahomans Certified By Board of OB-GYN

One Oklahoma City and two Tulsa physicians have been certified by the American Board of Obstetrics and Gynecology. Those awarded the certifications on May 16, 1959 were: Farris W. Coggins, M.D., 1100 North Dewey, Oklahoma City; Eugene S. Cohen, M.D., 2021 South Lewis, Tulsa; and Houston F. Mount, M.D., 3102 South Harvard, Tulsa.

## Ritzhaupt Honored by State Senate

Senator Louis H. Ritzhaupt, Guthrie physician, was honored during the closing days of the 27th Legislature when his fellow lawmakers took recognition of his years of service to his state and presented him with a commendatory resolution.

The resolution reads as follows:

Whereas, Senator Ritzhaupt has sacrificed the time otherwise available for a distinguished medical career to serve in the State Senate since 1933 when he was a member of this body in the Fourteenth Legislature; and

Whereas, with the exceptions of the Twenty-fourth and Twenty-fifth Legislatures, Senator Ritzhaupt has been present for every session of the legislature since that time; and

Whereas, Senator Ritzhaupt has been a leader in the enactment of some of the most significant legislation produced during his tenure, particularly in the fields of public health, highways, education, public safety and care of crippled children; and

Whereas, Senator Ritzhaupt has served as chairman of such important committees as Public Health and Planning and Resources and has rendered outstanding service on the Education Committee, as well as many others; and

Whereas, such a long and distinguished career deserves the expressed approbation and appreciation of his colleagues.

Now, therefore, be it resolved by the Senate of the Twenty-Seventh Legislature of the State of Oklahoma:

That the members of this, the State Senate of the Twenty-seventh Legislature of the State of Oklahoma, now duly assembled and acting for themselves and on behalf of the people of the State of Oklahoma, do hereby commend Senator Louis H. Ritzhaupt for his long years of legislative service and his many contributions and achievements in that capacity; and

Be it further resolved that a properly prepared copy of this resolution be sent to the Guthrie Daily Leader, Guthrie, Oklahoma.

Adopted by the Senate the 23rd day of June, 1959.

HAROLD T. GARVIN,  
President Pro Tempore of the Senate.



## **New Ardmore Sanitarium And Hospital Opened**

On May 10, the new Ardmore Sanitarium and Hospital was formally opened with ceremonies on the steps of the new building, followed by an open house from 2 to 7 p.m.

Of contemporary design, the H-shaped structure utilizes 17,000 square feet of floor space. Modern decor of pastel colors is used on the interior of the brick building.

The 53-bed hospital includes a convalescent wing with 14 beds for elderly retired patients. Plans are being formulated now to add a 75-bed wing to accommodate a larger group of this type of patient.

One of the unique features of the hospital is a complete hydrotherapy department.

The surgery suite is equipped with the newest equipment, including cardioscope and cardiophone equipment, making it possible to take care of any emergency which might occur during operations.

Funds for the new \$300,000 sanitarium were made available through the Seventh Day Adventists Conference, Ardmore business men, the Ford Foundation, local church members and churches of Oklahoma. The Ardmore Sanitarium and Hospital is one of 122 hospitals that the Seventh Day Adventist Church operates throughout the world.

Conveniently located on an 11-acre tract on 12th Avenue, N.W., just off of Highway 77, the sanitarium has parking for 75 automobiles.



# Have You Heard?

G. A. COMP, M.D., Manitou physician, recently retired and has moved to Norman. Doctor Comp had been in active practice for nearly 53 years at the time of his retirement.

W. N. OXLEY, M.D., formerly of Texhoma and Guymon, is in Vienna, Austria taking a six weeks advanced course in surgery. Doctor Oxley plans to re-establish his practice in Guymon upon his return.

FRED L. PATTERSON, JR., M.D., of Duncan, will join the staff of the Veterans Ad-

ministration Hospital in Huntington, West Virginia on August 3. Doctor Patterson, who has practiced in Duncan since 1946, will be assistant chief medical examiner in Huntington.

ROBERT A. McLAUCHLIN, M.D., Oklahoma City physician, has announced the opening of his new offices located at 1200 North Walker.

W. ALBERT COOK, M.D., retired Tulsa physician, recently observed his 85th birthday. Doctor Cook was the first President of the Tulsa County Medical Society. He served as President of OSMA in 1917-18 and for 21 years was a delegate to the American Medical Association.

## Returning to Work Today Or Next Month?

Let your patient's return to work be governed by good medical practice and not by the expiration of unavoidable absence benefits.

"Doctor, when can I go back to work?" What your reply to that familiar question will be should be based on good medical practice rather than on financial consideration. The patient with adequate health and accident insurance will be quite willing to abide by the physician's recommendations and wait patiently for normal convalescence to take place—provided his benefits hold out that long. With the expiration of insurance benefits, a new symptom may appear: "Hospitalitis" and with the onset of this condition in a convalescing patient, there will be increasing pressure on the physician for early release even though good medical practice may dictate a longer convalescence.

When industry today favors early return to work as a means of reducing the tremendous cost of absenteeism, the crux of the matter in a decision for release to work must still be:

Can the patient be returned to work without jeopardizing his health?

Should you be faced with a long convalescence in a patient whose benefits have expired, you will usually find industry very cooperative in the rehabilitation of your patient by setting up a part-time work schedule. It is a real morale boost to the convalescent cardiac, for example, to be able to spend even one or two hours per day at his job. In the case of office workers, a part-time work schedule can oftentimes be arranged. In the case of manual laborers, or those employed in jobs which come under labor negotiations, it has been virtually impossible for industry to set up part-time schedules even for rehabilitation purposes, as this practice is usually strictly forbidden in the working contract. For all other jobs not bound by labor negotiations, you will find industry ready to assist you in your patient's early return to work. Should temporary work restrictions be necessary to assure complete recovery, a telephone visit with the plant physician or employee's supervisor will greatly facilitate early, safe return to work for your patient.

Prepared by OSMA Committee on Occupational Medicine

## Delegates Report on A.M.A. Meeting

The following reports from Oklahoma's Delegates to the American Medical Association were prepared for publication in *The Journal*:

### Doctor Phelps

The official summary of the House of Delegates of the A.M.A. meeting in Atlantic City, June 8-12 appeared in the June 29 issue of the *Journal of the A.M.A.* I hope that each member of the Oklahoma State Medical Association will read this report carefully.

It seems to the writer that the progressionism trend which started about two years ago was accelerated.

Action by this house of delegates ended the hostility to closed panels and backed down from the principal of no compromise with medical care plans which restrict free choice of physicians.

The House of Delegates even exhibited restraint on condemning socialized medicine.

An Arizona resolution that would have reaffirmed A.M.A. resistance to "the ultimate complete socialization of the medical profession" was watered down and adopted as a rather meaningless generalization to the effect that organized medicine should scrutinize federal programs which "might lead to socialized medicine."

While the house did not go as far as the judicial council recommended, steps were taken toward professional liaison with osteopathy. Such moves were soundly defeated a few years ago.

Although increasing numbers of medical societies have been supporting compulsory inclusion of physicians into social security, the House of Delegates did stand firm in opposition. It is to be hoped that in the next few months more members will take the time to actually make a study of this so called "social security." Intelligent study

will reveal the fraudulence of this socialistic gimmick. Too many otherwise intelligent people accept the false propaganda disseminated by bureaucrats, anxious to promote their power and perpetuate their jobs, rather than obtain the true facts about social security.

This trend toward the left may be the product of a new accent on flexibility by the management consultants and their influence on the board of trustees.

Since reorganization the policy seems to be to go easy on Washington lobbying, avoid quarrels over fundamental principles with anyone, especially labor bosses and adopt a tolerant or even submissive attitude toward medico-economic reforms once branded as socialistic.

Several members of the O.S.M.A. were present through the four days of meetings. Several appeared before reference committees and expertly presented the views of the Oklahoma physicians.

Doctor Wilkie Hoover worked tirelessly and was ably assisted by Doctors R. Q. Goodwin and Joe Duer, the alternate delegates. Doctor John F. Burton, member of the Council on Medical Service, and our president, Doctor A. T. Baker, attended all meetings. Doctor Showman of Tulsa, the delegate from the Section on Dermatology, gives this state another delegate. He is of great help to the other two Oklahoma delegates.

Bill Kirkham of the O. U. Medical School and President of the Student American Medical Association spoke to the House of Delegates. His talk made us all swell with pride and we are happy to claim him as one of the representatives of Oklahoma medicine.

As usual, Jack Spears, Executive Secretary of the Tulsa County Medical Society, and Don Blair, the Associate Executive Sec-

retary of the O.S.M.A. were close observers at the sessions and rendered valuable assistance to all of the Oklahoma physicians present.

Next December the interim session of the A.M.A. will be in Dallas. I sincerely hope that each member of the O.S.M.A. will attend the meetings of the House of Delegates and the reference committees at that time.

Your delegates welcome your advice and suggestions and will do everything in our power to present your views and assist all members of the O.S.M.A. in every way that we can.—*Malcom E. Phelps, M.D.*

#### Doctor Hoover

The American Medical Association held its 108th Annual Medical Meeting in Atlantic City, New Jersey June 8 through June 12, 1959. The highlight of this meeting was the address of the President Dwight D. Eisenhower who spoke before an over-flow audience on Tuesday night on the occasion of the inauguration of Doctor Louis M. Orr of Orlando, Florida, as the 113th president of the A.M.A. No president of the United States had addressed an A.M.A. annual or clinical meeting previously.

Doctor E. Vincent Askey of Los Angeles, California was elected president-elect of the A.M.A., Doctor Stanley Kenney of New York became Vice President. Doctor Norman Welch of Boston, Massachusetts was elected speaker of the house of delegates and Doctor Milford O. Rouse of Dallas, Texas was named Vice Speaker. Trustees Rufus Robbins of Arkansas and Hugh Hussey of Washington, D. C. were re-elected to succeed themselves. Doctor Percy Hopkins of Chicago was named a trustee to fill the unexpired term of Warren Furey.

One of the most important matters considered by the house of delegates was the report of the Commission on Medical Care Plans. While the house of delegates endorsed "Free choice of Physician" as an important factor in the provision of good medical care the house requested the following recommendation be transmitted to all constituent medical associations:

"In order that the principle of free choice

of physician be maintained and be fully implemented, the medical profession should discharge more vigorously its self-imposed responsibility for assuring the competency of physicians services and their provision at a cost which people can afford."

The house took a stand which virtually approved closed panel medicine by implication. No firm statement of policy came forth and the house adopted a recommendation which declares that "those who receive medical care benefits as a result of collective bargaining should have the widest possible choice from among medical care plans for the provision of such care."

The osteopathic question was again given serious study and the house of delegates softened the A.M.A. attitude regarding doctors of medicine teaching in osteopathic colleges providing said college is in the process of being converted into an approved medical school under the supervision of the A.M.A. Council on Medical Education and Hospitals. They also recommended that a liaison committee be appointed by the Board of Trustees of the American Medical Association to meet with representatives of the American Osteopathic Association, if mutually agreeable, to consider problems of common concern including inter-professional relationships on a national level.

A briefing of the actions of the A.M.A. house of delegates was printed in the June 27, 1959 issue of the *Journal of the American Medical Association*. I suggest that all members of the Oklahoma State Medical Association read this interesting summary.

Doctor Malcolm Phelps, your other delegate, attended all sessions and served on an important committee at this meeting. He as well as alternate delegates, R. Q. Goodwin and Joe Duer worked admirably in behalf of the Oklahoma State Medical Association. Doctor W. A. Showman of Tulsa served as a delegate from the Section of Dermatology and worked closely with the Oklahoma Delegation. Your president, Doctor Alfred T. Baker also attended all sessions of this meeting. Mr. Don Blair and Mr. Jack Spears were also present and were of invaluable assistance.—*Wilkie D. Hoover, M.D.*



## BLUE CROSS PERCENTAGE UTILIZATION BY COUNTY

HOSPITAL CARE USED—1958 AVERAGE COMPARED TO AVERAGE FOR FIRST QUARTER OF 1959

County Name	1958	1st qtr. 1959	County Name	1958	1st qtr. 1959
Adair	122.0	90.9%	Lincoln	108.5	95.9%
Alfalfa	90.1	87.0	Logan	57.1	43.5
Atoka	92.0	88.5	Love	76.4	110.3
Beaver	100.5	83.2	McClain	89.3	95.9
Beckham	101.2	109.1	McCurtain	113.0	131.5
Blaine	115.0	95.9	McIntosh	66.4	82.9
Bryan	70.5	60.9	Major	97.8	100.3
Caddo	97.1	84.1	Marshall	93.8	64.1
Canadian	83.3	67.5	Mayes	92.6	73.3
Carter	92.3	74.9	Murray	69.1	121.1
Cherokee	113.3	110.9	Muskogee	78.4	77.0
Choctaw	106.7	120.6	Noble	98.0	79.0
Cimarron	88.7	96.8	Nowata	120.3	110.8
Cleveland	84.8	76.7	Okfuskee	91.5	71.8
Coal	126.6	106.2	Oklahoma	78.1	66.6
Comanche	89.9	102.9	Okmulgee	95.4	92.0
Cotton	91.6	71.4	Osage	102.3	124.2
Craig	98.4	129.2	Ottawa	101.8	106.0
Creek	109.9	128.5	Pawnee	109.3	102.2
Custer	104.2	69.6	Payne	93.0	75.4
Delaware	100.9	142.7	Pittsburg	103.9	115.5
Dewey	86.7	73.2	Pontotoc	101.0	97.7
Ellis	79.0	69.0	Pottawatomie	84.5	88.1
Garfield	115.0	110.9	Pushmataha	113.0	87.6
Garvin	75.0	91.7	Roger Mills	111.6	125.4
Grady	77.0	58.2	Rogers	96.4	95.3
Grant	106.4	101.4	Seminole	78.5	57.4
Greer	81.5	65.4	Sequoyah	89.7	219.3
Harmon	60.6	62.5	Stephens	97.0	96.7
Harper	90.1	117.0	Texas	118.1	105.2
Haskell	73.3	93.3	Tillman	115.4	85.6
Hughes	106.1	81.7	Tulsa	103.8	91.5
Jackson	82.6	82.3	Wagoner	97.6	69.3
Jefferson	133.5	142.3	Washington	100.5	103.5
Johnston	74.0	70.2	Washita	108.4	72.0
Kay	90.3	80.3	Woods	107.2	97.0
Kingfisher	81.9	65.9	Woodward	91.4	100.9
Kiowa	88.2	92.2			
Latimer	114.8	138.2			
LeFlore	86.9	95.0	Average	94.6	93.8

NOTE: Utilization is on a paid basis and does not include reserves, operating expenses, nor any estimated retroactive payments.

Released at the request of the Blue Cross-Blue Shield Liaison  
Committee for the Information and Education of OSMA members.

# Auxiliary News

## Oklahomans Receive Appointments

Two "top" leaders in the Woman's Auxiliary to the Oklahoma State Medical Association have been requested to fill "top" spots in the American Medical Auxiliary for 1959-60. Mrs. Neil W. Woodward, Oklahoma City, is National Civil Defense Chairman; Mrs. E. Clyde Mohler, Ponca City, is Area Legislative Chairman for five southern states, including Oklahoma.

## Civil Defense

Public apathy to the term "Civil Defense" is difficult to understand. When this attitude first became apparent to leaders in civilian defense several years ago, new approaches on community bases seemed the answer. Since we are attempting projects on the basis of "individual responsibility," we should consider all possibilities.

To the pessimistic who state that so long as there is military and national unconcern; that so long as each household or immediate neighborhood is without protection if no bomb shelter is available, we first can stress the need for basic precaution. Adequate stocks of dressings, water, food, all of the material listed originally in the "grandma's pantry" idea, are basic. To approach the importance of first-aid training, essential home nursing, and minimal protection, perhaps we should enter the back door of Civil Defense.

Would it be logical to sub-title this program "Survival?" Perhaps disinterested persons, or those skeptical of the value of Civil Defense, could think in terms of survival during other disasters and realize that the necessity for preparedness is all inclusive, encompassing flood, tornado, earthquake, hurricane. Also to be considered are man-made disasters irrespective of atomic development: wrecks involving planes, trains, buses, explosions.

Regardless of title of sub-title, preparedness for emergency situations is essential in

every community, and we are extremely thankful that this important phase of our Auxiliary is in the capable hands of Mrs. Woodward.

## Legislation

How does an Auxiliary member become and keep well-informed on legislative matters, especially those directly affecting the medical profession? If she looks carefully and at the proper time, there are sometimes short articles inconspicuously placed inside in local newspapers. Occasionally, a cryptic editorial might mention H.R. 10—or in the future, we can hope, Senator Sparkman's S. 3194. Regardless, sedulous searching is required.

If you are a new member, or a not so well-informed older member and your time is valuable, the *Bulletin*, official organ of American Medical Auxiliary, is invaluable. The *Bulletin* is published quarterly; the price is \$1.00 a year. Second, attend Auxiliary meetings regularly for reports from your county Legislation Chairman. If you have questions concerning pending legislation which are not answered in her report, ask them.

If and when an emergency arises and we are asked to write our congressmen and to contact friends and neighbors for their support( as we have been requested in the past), each Auxiliary member can be contacted within an hour by our telephone committee system.

Prior to emergency contact, other than our ability to function as a group for direct action, it is most important that we can possess sufficient knowledge to answer questions intelligently and convincingly. Mrs. Mohler, as our Area Legislative Chairman, will assist us directly in our five-state southern area.

Because we are an Auxiliary concerned with "individual responsibility," we sincerely wish a fine year ahead to both of our national representatives.

# Deaths

DONALD LAWSON OESTERREICHER, M.D.  
1921-1959

Donald Lawson Oesterreicher, M.D., Norman physician, died on July 8, 1959.

A native of Dixie, Georgia, Doctor Oesterreicher graduated from the University of Georgia and in 1949 graduated from the University of Oklahoma School of Medicine.

Doctor Oesterreicher took a residency in surgery at the University of Oklahoma Hospitals from 1950 through 1954. He was then appointed Chief of Surgery at Central State Hospital in Norman, a position he held at the time of his death.

He was a member of the Oklahoma State Medical Association and the American Medical Association.

WILLIAM H. MCBRAYER, M.D.  
1871-1959

William H. McBrayer, M.D., 87-year-old Idabel physician died June 25, 1959.

Born in Ogreeta, North Carolina, Doctor McBrayer graduated from Chattanooga Medical College in 1902. He came to McCurtain county, locating at Goodwater, Indian Territory for five years before moving to Haworth in 1905. He remained at Haworth until 1945 when he moved to Idabel.

In 1954, Doctor McBrayer was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with a 50-Year-Pin.

CHARLES WALLIS OHL, M.D.  
1909-1959

Charles Wallis Ohl, M.D., 49-year-old Chickasha physician, died June 26, 1959 in Chickasha.

A native of Vineland, New Jersey, Doc-

tor Ohl graduated from the Hahneman Medical School in Philadelphia in 1937. The following year he came to Chickasha where he practiced continuously except for five years spent in the military service.

Doctor Ohl was a member of the Oklahoma State Medical Association and the American Medical Association.

WILLIAM H. COOK, M.D.  
1878-1959

William H. Cook, M.D., 81-year-old retired Chickasha physician, died July 12, 1959.

Born in Putnam County, Missouri in 1878, Doctor Cook graduated from Washington University School of Medicine in 1907. He had practiced in Chickasha since 1909.

In 1951, Doctor Cook was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with a Life Membership. In 1957, the Association awarded him a 50 Year Pin in recognition of a half century of medical service.

SIDNEY MOORE RICHEY, M.D.  
1869-1959

Sidney Moore Richey, M.D., a retired pioneer Tulsa physician, died June 10, 1959.

A native of Delaware, Ohio, Doctor Richey graduated from St. Louis College of Physicians and Surgeons in 1895. After practicing in Minden, Missouri for a few years, he established his practice at Francis, Oklahoma where he remained for 26 years, moving to Tulsa in 1926. He retired in 1941.

Doctor Richey was an Honorary Member of the Oklahoma State Medical Association.



# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association, August, 1934.

## FOREIGN SURGICAL CLINICS

John F. Park, M.D., F.A.C.S., McAlester

During a visit to some European clinics, procedures of interest were observed which differed from the accepted procedures in the foremost clinics in America. In no sense is this a critical comparison.

With few exceptions, all European surgeons are agreed that partial gastrectomy is the operation of choice in all types of chronic duodenal and gastric ulcer. Finsterer of Vienna, in 529 cases of duodenal ulcer did a gastric resection in 97.5 per cent, and a gastro-enterostomy in 2.5 per cent.

For bleeding peptic ulcer, Finsterer of Vienna recommends partial gastrectomy advocating prompt operation, while von Eiselsberg also of Vienna transfuses in bleeding ulcer and if the hemorrhage is not controlled then resects the stomach, but stated that only rarely was the hemorrhage not controlled by transfusion.

Jirasek, Prague, states that more and more patients with hyperplastic toxic goitre are seen each year, and they all come late for treatment, that they are usually in a very serious condition and that as a result his operative mortality is 10 per cent. He attributes the increase in the number of toxic goitres to the taking of iodine.

## Gynecology

In fibroid of the uterus, hysterectomy when done by the abdominal route was invariably done supravaginally, the only exception being Strassman of Berlin who routinely does a complete hysterectomy. His statistics show carcinoma develops in 5 per cent of the cervixes when left. The cervix is covered usually by peritoneum, but the round ligaments and the adnexal pedicles are but rarely sutured to the cervical stump.

## Anesthetics

The anesthetic of choice in most clinics is ether through a closed mask with a rebreathing bag. Spinal anesthesia has its advocates, while others employ local anesthesia almost exclusively. Avertin is used in but few cases, and gas was used in only one clinic.

## Miscellaneous

Allessandri withdraws 10 cc. of spinal fluid and after giving spinal anesthetic of tutocam, he injects the 10 cc. of spinal fluid into a vein in order to prevent headache and to decrease the incidence of urinary retention.

Strassman (Berlin) scrubs his hands for ten min-

## Books Received

The following books have been received by *The Journal* office. As space permits and the context warrants, books will be reviewed.

**Biosynthesis of Terpenes and Sterols.** G. E. W. Wolstenholme and Maeve O'Connor, Little, Brown & Company, Boston, Massachusetts. Price \$8.75.

**Childbearing Before and After 35.** Adrien Bleyer, M.D., Vantage Press, New York. Price \$2.95.

**Diseases of Women.** Ten teachers under the direction of Frederick W. Roques, The Williams & Wilkins Company, Baltimore, Massachusetts. Price \$8.00.

**A Doctor Remembers.** Edward H. Richardson, Vantage Press, Inc., New York. Price \$3.95.

**Hearing, A Handbook for Laymen.** Norton Canfield, M.D., Doubleday & Company, New York. Price \$3.50.

**Insulin Treatment in Psychiatry.** Max Rinkel, M.D. and Harold E. Himwich, M.D., Philosophical Library, New York. Price \$5.00.

**Patient Care and Special Procedures in X-ray Technology.** Carol Hocking Vennes, R.N. and John C. Watson, R.T., C. V. Mosby Company, St. Louis, Missouri. Price \$5.75.

**Now or Never.** Smiley Blanton, M.D., with Arthur Gordon, Printice-Hall, Inc., Englewood Cliffs, New Jersey. Price \$4.95.

**Pediatric Neurology.** Stanley S. Lamm, M.D., Landsberger Medical Books, Inc., New York. Price \$12.90.

**Questions and Answers in Anatomy.** Stanley D. Mirogiannis, Ph.D., Vantage Press, New York. Price \$5.00.

**Regulation of Cell Metabolism.** G. E. W. Wolstenholme, O. B. E. and Cecilia M. O'Connor, B. Sc., Little, Brown & Company, Boston, Massachusetts. Price \$9.50.

utes, washes in sterile water for five minutes, and then dusts his hands with dry boric acid powder; he also places boric acid powder in the fat layer of the abdomen after the fascia has been closed in suppurative cases, claiming that it lessens infection and post-operative cystitis. For drainage he uses ostrich feather and pigeon feather quills with wicks. He does not routinely remove the appendix when doing a hysterectomy, believing that it increases the operative mortality; in fact in one clinic was incidental appendectomy observed.

In cases of non-union of bone Schmeiden withdraws 25 cc. of the patients blood and injects it between the fragments and the ends of the bone to stimulate callus formation. This repeated every two weeks.

In one clinic in Rome they were filling the bone cavity in osteomyelitis with a mixture of plaster of paris iodoform. The results were not too brilliant.

### General Practice

Donald D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, graduated from Oklahoma University School of Medicine, 1958, available immediately. No military obligations.

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

Louis E. Harrington, M.D., Danbury, Iowa, age 37, married, graduated from Wayne University College of Medicine, Detroit, Michigan, 1949, veteran, will be available September, 1959.

John Leland Hudson, M.D., 9 Anna Sue Road, Van Buren, Arkansas, married, graduated from the University of Arkansas, 1955, veteran, available since April 7, 1959.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Peter Pappas, Jr., M.D., 513 N. Louise Street, Atlanta, Texas, age 35, married, graduated from University of Texas, 1954, veteran, will be available July 1, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, graduated from Tulane, 1943, veteran, has an interest in teaching and wishes to get into small hospital work, availability date depends upon situation.

Doss O. Lynn, M.D., 6101 16th Street, N.W., Washington 11, D.C., age 47, married, graduated from University of Oklahoma, 1937, board certified in internal medicine and cardiology, will have completed 21 years active service September 1, 1959, prefers institutional or industrial practice. will be available after September 1, 1959.

Vanis Pennington, M.D., 1440 W. Bethune, Apt. 402, Detroit, Michigan, age 30, married, graduated from University of Tennessee, 1953, veteran, will be available December, 1959.

John H. Prodell, Jr., M.D., 115 South Mall, Willow Lawn, Richmond 30, Virginia, age 38, married, graduate of Harvard, 1947, veteran, will be available July 1, 1959.

### Locum Tenens

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for two weeks, available any time after July 1.

B. Anthony Linn, M.D., Veterans Administration Hospital, 4500 S. Lancaster Road, Dallas 16, Texas, will finish residency in Ophthalmology in July, graduate of the University of Oklahoma, 1956, licensed to practice in Oklahoma, would like to have a locum tenens for two weeks during the summer of 1959.

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

### Obstetrics and Gynecology

Robert Lee Crews, M.D., 5040th USAF Hospital, Anchorage, Alaska, age 31, married, graduate of Vanderbilt, 1954, board eligible, will be available July, 1960, upon completion of military service.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, graduated from University of Texas, 1953, board qualified, veteran, will be available in July of 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### Otolaryngology

Joseph E. Walthall, M.D., 1673 West Broadway, Anaheim, California, age 37, married, graduated from Duke University, 1946, board certified in Otolaryngology, veteran, will be available in approximately three months.

### Pediatrics

Prentiss Edwards Findlay, M.D., 1500 Wakefield Place, New Orleans 22, Louisiana, age 29, married, graduated from Emory University, Atlanta, 1954, non-eligible for military service, will be available July 15, 1959.

### Radiology

Thomas A. Lynch, M.D., 7009 N. 17th Street, Tacoma, Washington, age 39, married, graduated from University of Washington, 1950, board certified, veteran.

availability date depends on circumstances of new position.

### Surgery

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

Valerio J. Federici, M.D., 2401 West Toronto Street, Philadelphia, Pennsylvania, age 36, married, graduated from Jefferson Medical College, 1948, veteran, is now available.

Owen Foster Kline, Jr., M.D., 4712 Warrington Drive, Flint, Michigan, married, graduated from University of Colorado, 1954, not eligible for military service at the present time, will be available July 1, 1959.

### General Surgery

Frank L. Lanuti, M.D., 215 S. Randall Avenue, Madison 5, Wisconsin, age 38, married, graduated from University of Illinois, 1953, board eligible in general surgery, veteran, will be available July 1, 1959.

Clyde William Draughon, M.D., McGuire Hospital, Box 27, Richmond, Virginia, age 35, married, graduated from University of Oklahoma School of Medicine, 1954, veteran, will be available July 1, 1959.

Sam Leslie Robinson, M.D., University Medical Center, Jackson, Mississippi, age 30, married, graduated from University of Tennessee, 1953, will be available July, 1961, on completion of residency.

## MISCELLANEOUS ADVERTISEMENTS

17 BED hospital, clinic and equipment for sale. Prefer to sell all to one buyer in attractive package offer, but will consider other offers. Equipment includes X-ray, fluoroscope, Medco Sonalator, BMR, diathermy, etc. In settling estate of Charles W. Ohl, M.D., facilities and equipment will be sold at considerably less than original cost, and time payments may be arranged. Contact Walt Allen, Co-Executor, 116 North 4th Street, Chickasha, Oklahoma.

WANTED: General Practitioner—Five man established group. Prefer locum tenens for one year. Will meet competitive salary requirements for qualified man. Contact H. B. Landholt, Business Manager, Physicians & Surgeons Clinic, Box 711, Holdenville, Oklahoma.

TO SUB-LET: Six months beginning August, 1959, lease then available for five years. Suite 860 square feet. Frew Building, 528 N.W. 12th, William Best Thompson, M.D.

FOR SALE: Hamilton Pediatric table #9888, tan finish, grey upholstery, new condition. Worden walnut consultation room furniture, new condition. Also used equipment sufficient to equip small office. Contact W. P. Jeter, M.D., 912 S.W. 50, ME 2-1556, Oklahoma City.

WANTED: Late model Electrocardiograph. Write Key B, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

WANTED: University Health Physician, man or woman. Salary depending upon experience. Approximately 9,500 students. Fifty bed hospital. Contact Roxie A. Weber, M.D., Director University Health Service, Oklahoma State University, Office of University Infirmary, Stillwater, Oklahoma.

PHYSICIAN NEEDED in Konawa, Oklahoma. Population 3,000 with no M.D. Building and some equipment available; also possibility that community will construct and equip modern clinic. Contact Robert D. Peercy, Box G, Konawa.

REGISTERED LABORATORY TECHNICIAN: Major oil company in progressive southwestern community of 25,000 has opening for female registered laboratory technician for complete clinical laboratory. 40-hour work week. Excellent employee benefits. Give education, experience, and salary requirements in initial letter and include photograph. Write Key F, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

FOR SALE: One 220 KV Westinghouse Deep Therapy X-ray Unit, complete with complete set of treatment cones, including intermediate therapy cone set and release treatment stretcher. Price: \$5,000. Owner may be contacted via CE 2-5501 or P.O. Box 1825, Oklahoma City, Oklahoma.



# Editorials

## **Voice of the Taxpayer**

Oklahoma viewers will receive medicine's viewpoint on the challenge of an aging population when the one-hour television program "Voice of the Taxpayer" goes on the air October 11, 2:00 p.m., (KOCO-TV, Channel 5).

Under the direction of Mr. Steve Stahl, Executive Vice-President of the Oklahoma Public Expenditures Council and Chairman of the National Taxpayer's Conference, the program will consist of a panel discussion featuring such notables as Louis M. Orr, M.D., President of the American Medical Association and Rita Campbell, American Enterprise, Incorporated.

Tentative plans for the presentation call for a comprehensive introduction to the "problem" as it exists in the minds of some politicians and special interest groups, followed by the panelists' discussion as to how it may exist *in fact*. The controversial Forand Bill will receive its share of attention and viewers will likely be asked to contact their Congressmen.

Mr. Stahl has contributed much of his time to not only combat socialized medicine, but to also rekindle individual and family responsibility in health matters. The October 11 program will be his second television appearance in this regard since January, 1959. Twenty-one additional programs have been presented on state and federal problems of government and taxation.

Physicians are encouraged to promote listenership for the program. Only through the majority's understanding of the multifaceted situation will a sound approach to the challenge of aging be realized.

## **Child Study Center Children's Memorial Hospital**

### **A CONCEPT OF COMMUNITY SERVICE**

The Department of Pediatrics, University of Oklahoma School of Medicine, received

a grant of near \$50,000 a year for three years from the National Institutes of Mental Health for its Child Study Center. In the application for the grant the following appears:

"An unusually large number of children with specific reading disability have already been evaluated by the Study Center. This surprisingly large group has resulted in plans for the establishment of a Reading Clinic in cooperation with the City and State Departments of Special Education and the Children's Hospital School. The number of children with dyslexia already evaluated in the short period of time since the inception of the study center has over-crowded the limited facilities for therapy. The establishment of a developmental and remedial reading clinic will further enable the study center to achieve one of its aims, to demonstrate the provision of cooperative, comprehensive care of mentally handicapping conditions.

"Training and observation will be available in the Reading Clinic to all school teachers for instruction in case finding, developmental and remedial reading techniques and for supervised practice teaching. With such a program for the regular class room teachers, more of these problems in children will be detected at an early age and appropriate therapy instituted. This will prevent the serious emotional problems that would have otherwise developed."

Through this, hope, on a large scale, may be realized for those many, many children who would have gotten to high school and even to college without being able to read. Only a scattered few have received adequate remedial training and many of these at an advanced age that precluded really effective training. The ultimate effect of such a program on the future citizens of Oklahoma can only be realized through awareness of the frustration that comes from not understanding the printed word. A simple sentence with subject, verb and object appears to the nine-year old-boy as an essay on prob-

abilities or partial pressures or transistors does to most of us.

This program is a striking example of the public and community service of which the school of medicine is capable and which will make it indispensable to the people of the state. It is indeed growing up and becoming a great producer institution—no longer just a consumer. No better plan for gaining support from the people could be conceived. *The Journal*, the parents of children who can't read, the teachers who can't teach children to read who can't read, and the high schools and colleges who can do little for children who can't read, all wish Doctors Riley and Richardson Godspeed, for children with dyslexia are getting older each day.

### **Development and Purpose of the Registry of Blood Dyscrasias**

An increasing number of drugs and other potentially toxic compounds found in industries, in the home, and in our daily contact are being introduced every year. Untoward reactions to some of these substances may be so rare as to avoid detection, even after careful field test prior to release to the public. Although these reactions may be rare, they can be very serious on occasion. This is particularly true of the drug-induced blood dyscrasias. It is impossible to differentiate clinically between a case of drug-induced marrow depression and one which apparently occurs spontaneously.

An investigator working independently might have difficulty assessing accurately the occasional hematological ill-effect he may see from the use of a drug. However, the collective experience of a number of observers may be helpful. For this reason, the Registry on Blood Dyscrasias of the Committee on Research of the American Medical Association was established to assemble reports of blood dyscrasias in which drugs and toxic agents conceivably played a role. The registry is intended as a means of alerting the medical profession to such possibilities. It is not meant to be a repository for authoritative or statistical information.

The Subcommittee on Blood Dyscrasias conducted a two-year pilot study and has

reviewed the accumulated data. It has concluded that this information could serve as an early warning system for the medical profession. The summaries, which are prepared semiannually, will be distributed widely, in the hope that physicians will become aware of the existence of the registry and will report cases. The current summary has been distributed to the following groups: state and county medical societies, hospitals, medical school libraries, and departments of pharmacology, pathology, medicine, and pediatrics of all medical schools. Physicians may examine this information at these sources, or they may write to the Committee on Research, American Medical Association, for copies. In the summary for the second half of 1958, 427 cases have been reported to the registry by physicians in the United States and Canada since 1953, and some cases have been taken from the literature. Reports are accepted by the registry only when the drug or toxic agent was administered to the patient within six months prior to the appearance of the dyscrasia. It is evident that inclusion of a drug in the list does not necessarily mean that it is harmful or that it was the cause of the reported dyscrasia. The information contained in the summary is not to be considered authoritative or statistically significant, since these data are "raw" and undoubtedly represent only a small segment of the total number of cases which probably occur.

When a patient develops a blood dyscrasia after use of a single drug, there is stronger circumstantial evidence of an etiological relationship than in instances in which many drugs were administered. If it is well known that one of the drugs administered may cause the dyscrasia, suspicion should not rest as heavily on the other drugs, especially if they are not known to cause a dyscrasia.

The continued effective operation of the registry depends on the cooperation of physicians who have seen patients with blood dyscrasias which they suspect might have been induced by a drug or toxic agent. The form used in reporting cases to the registry may be obtained by writing to the Secretary, Committee on Research, American Medical Association, 535 N. Dearborn St., Chicago 10.



## The Treatment of Primary Dysmenorrhea with Chlormezanone (Trancopal®)

RECOGNITION of the frequency and severity of primary dysmenorrhea has encouraged therapeutic measures which have closely followed the currently fashionable theories about the etiology of menstrual symptoms. Hormonal, antispasmodic, analgesic and psychiatric treatment are used with varying success. Endocrine therapy is regarded by many as dangerous, especially in the teen age girl whose hormonal pattern may easily be permanently disrupted.<sup>1</sup> Analgesics are often inadequate unless very potent and the hazards of narcotics for relieving a regularly occurring pain are well-known. An increasing emphasis on the importance of emotional factors in causing dysmenorrhea<sup>2, 3, 4</sup> has influenced many physicians to adapt programs directed towards the relief of tension and anxiety at the time of menstruation. While there is evidence that psychotherapy is valuable, the practical limitations of treating a disorder occurring in an estimated thirty-five to forty-seven per cent of women are obvious.<sup>5, 6</sup> The advent of tranquilizing drugs offers hope that the relief of psychic stress may combat the physical pain and several recent publications support this viewpoint.<sup>7, 8</sup>

AUSTIN R. STOUGH, M.D.

Since graduating from the University of Tennessee College of Medicine in 1936, Austin R. Stough, M.D., practiced in Oklahoma City and Tecumseh before locating in McAlester. He is engaged in general practice, with a special interest in Urology.

Doctor Stough is a member of the South Central Section of the American Urological Association and the American Society of Clinical Hypnosis.

Chlormezanone (Trancopal\*) is a recently synthesized drug belonging to the metathiazanone group of compounds. It is a central relaxant which is thought to depress the subcortical centers of the brain stem as well as the polysynaptic spinal pathways and in this way provide relief from muscle spasm as well as induce a general tranquilizing effect.<sup>9</sup> The low toxicity and excellent tolerance of chlormezanone in both animal and clinical studies<sup>10, 11</sup> and the unusual combination of muscle relaxing and tranquilizing actions afford a rationale for using this

\*Material for this study was supplied by the Medical Research Department of Winthrop Laboratories, New York, N.Y.



drug to treat menstrual symptoms. Practical experience has shown this assumption to be correct. Lichtman<sup>11</sup> reports that fifty-six of sixty-five women with dysmenorrhea found much relief with Trancopal. Of fifty patients with particularly severe pain treated by Shanaphy,<sup>12</sup> all except nine responded well.

### Materials and Method

A series of 75 women, each having a history of menstrual pain of varying sorts and intensity, with no evidence of organic pathology, was studied before and during treatment with Trancopal in an attempt to evaluate the effectiveness of this preparation against the symptoms of dysmenorrhea. The following information was obtained from each patient: the type, intensity and duration of symptoms; interference of symptoms with normal activity; the nature and effect of previous medication; the amount of relief afforded by Trancopal (complete, moderate, slight, none) and a comparison of the effectiveness of Trancopal with other therapy. The number of 100 mg. tablets of Trancopal needed during each menstrual period was carefully recorded. These women were all institutionalized so that the amounts and kind of medication were never in doubt. All patients were observed through one to four menstrual periods and remained untreated when asymptomatic. Although subjective reports of relief were the main criteria, objective assessments of behavior, mood and performance were available.

An attempt is made to compare the character of dysmenorrhea and response to therapy in the girls under 20 years of age, who comprise three-quarters of the series, with these findings in the older age group. In the total series, 52 were teenagers ranging in age from 13 to 18 years (average age, 15.4 years) and 23 were between 20 and 40 years (average age 28.35 years). In the teenage group, complaints were either abdominal pain (in 50 per cent), headache (in 21.15 per cent) or of both (in 28.84 per cent). Cramping pain was usually moderate, and less frequently rated as severe or slight, while headaches were either moderate or minor in intensity. Symptoms always oc-

curred with menstruation in 25.49 per cent, during most periods in 58.82 per cent and during some periods in 15.68 per cent of this group. In some girls, symptoms lasted up to four days, but the average duration was 1.92 days. A rather different pattern occurred in the older group. All complained of cramping abdominal pain which was either moderate or severe in intensity, rarely of headache (in three patients) while seven women suffered from other discomforts, for example backache, neckache or leg pains. These symptoms invariably accompanied each menstrual period. Dysmenorrhea lasted an average of 2.33 days and more of these patients were severely incapacitated, in spite of therapy with APC.

Previous drugs used to treat dysmenorrhea were aspirin, APC and Panodynes.<sup>®</sup>

Treatment with Trancopal consisted of one 100 mg. tablet given on the first complaint of discomfort and continued at a dosage of four tablets daily until symptoms could be expected to subside on the basis of past experience. Although patients denied taking other drugs during this study, aspirin was available to most of them.

### Results

The number of periods through which Trancopal was studied was not constant for each individual, some being only observed through one or two periods (see Table I). This circumstance, beyond our control, imposed an unfortunate limitation on the study. Response to therapy was constant from period to period in every case and, for this reason, the total number of 125 periods rather than the number of women is considered.

TABLE I. DISTRIBUTION OF THE TOTAL NUMBER OF PERIODS SHOWING THE RELIEF AFFORDED BY TRANCOPAL.

AMOUNT OF RELIEF	NUMBER OF PATIENTS				TOTAL NUMBER OF PERIODS
	1st period	2nd period	3rd period	4th period	
complete	36	22	7	5	70
moderate	26	11	1	0	38
slight	10	2	0	0	12
none	3	1	1	0	5
TOTAL	75	36	9	5	125

A separate analysis is made for each age group as well as for the whole series (see Table II).

TABLE II. SYMPTOMS USUALLY OCCURRING DURING DYSMENORRHEA.

AGE GROUP	ABDOMINAL PAIN			HEADACHE			OTHER
	slight	mod-erate	severe	slight	mod-erate	severe	
13-18 years	4	33	4	11	15	0	0
20-40 years	0	18	5	0	3	0	7

As shown in Table III, complete or moderate relief was obtained in 81.81 per cent of periods in the teenagers, and 93.74 per cent in the older women, while Trancopal was slightly or not effective in 18.17 per cent of instances in the former and ineffective in 6.25 per cent of the latter group.

TABLE III. THE AMOUNT OF RELIEF GIVEN BY TRANCOPAL IN BOTH AGE GROUPS AND IN THE TOTAL SERIES DURING 125 PERIODS.

RELIEF	AGE GROUP				TOTAL SERIES	
	number of periods	13-18 years per cent	number of periods	20-40 years per cent	number of periods	per cent
complete	30	38.96	40	83.33	70	56.00
moderate	33	42.85	5	10.41	38	30.40
slight	12	15.53	0	0	12	9.60
none	2	2.59	3	6.25	5	4.00
TOTAL	77		48		125	

When asked to compare Trancopal with other drugs (see Table IV), 63.46 per cent of teenage subjects found it more effective, 28.85 per cent the same, and 7.69 per cent less effective. In the older women, 82.61 per cent thought Trancopal better than APC which all had received previously, and 17.39 per cent considered it the same as APC. All women whose activity was usually restricted during menstruation were able to function normally while taking Trancopal. The associated symptoms of backache, neckache and leg pains were, in each instance, completely relieved. Side effects were noticeably absent and were not reported by any subject.

TABLE IV. A COMPARISON OF TRANCOPAL WITH OTHER DRUGS IN BOTH AGE GROUPS AND IN THE TOTAL SERIES OF 75 WOMEN.

RATING OF EFFECTIVENESS	AGE GROUP 13-18 years		20-40 years		number	per cent
	number	per cent	number	per cent		
more	33	63.46	19	82.61	52	69.33
same	15	28.85	4	17.39	19	25.33
less	4	7.69	0	0	4	5.33
TOTAL	52		23		75	

The following are representative case reports:

1. F.G., a 27-year old girl, has severe cramping neck and backache with each period but is never sick enough to be confined to bed. Her symptoms usually last two days and therapy with APC had been moderately effective. Complete relief from backache and abdominal pain was afforded by 100 mg. Trancopal four times each day and the drug is considered more effective than APC.

2. P.B., a 21-year old girl, has severe cramping each period which lasts two days; she is occasionally confined to bed for a few hours. Previous medication was APC which had been only moderately effective. Trancopal 100 mg. q.i.d. given for two days for each of three periods relieved cramping 15 to 20 minutes after each medication; cramping returned slightly by time of next medication. She received complete relief with Trancopal and considers it more effective than previous medication.

3. M.R., a 26-year old girl, has severe backache and cramping during each menstrual period. She is never sick enough to be confined to bed. Previous treatment with APC had been moderately effective. Trancopal given 100 mg. q.i.d. through two menstrual periods produced complete relief from cramping and backache. This girl considers Trancopal more effective than APC.

One patient who said that Trancopal did not relieve her pain nevertheless continued to demand the drug through each period. Observations of the behavior of these women by the Institute staff indicate the improvement produced by Trancopal was equal or better than that produced by other medication.

## Discussion

The etiology and dynamics of emotions provoking dysmenorrheal symptoms are complex and poorly understood. It is even more difficult to explain variations in these symptoms at different ages during the menstrual years. The importance of marriage, child-birth and early menopausal problems has not been adequately evaluated, although there is evidence that after the first years of menstruation the incidence of dysmenorrhea rises sharply to reach a height of be-



tween 49.8 and 85.4 per cent of all teenage girls.<sup>13</sup> Reports of the incidence in all age groups vary from 3 to 47 per cent,<sup>5</sup> an indication that the frequency of dysmenorrhea declines with increasing age. Severe pain does not usually appear until the adolescent has menstruated for several years and the cycle has assumed a regular pattern.

Although this study provides no information about the incidence of dysmenorrhea and does not attempt to evaluate the environmental stresses which may have contributed to symptom development, there is some reason to suspect a difference in type and duration of menstrual pain between the two age groups. The older woman more often experienced severe cramping abdominal pain which was frequently associated with other bodily aches, while headache was quite rare in these women. Paradoxically this group obtained more relief than did the teenage girls. It was first thought that the predominance of headaches in the younger group explained this difference in responsiveness to Trancopal. A careful examination of individual case reports showed no correlation between the kind of pain and amount of subjective relief in the teenage girls. Dysmenorrhea that persists beyond adolescence may eventually be differentiated physiologically from that found only in the teen years. Such a finding would perhaps account for the variation in response to Trancopal and may clarify the relationship between the pharmacology of this drug and its beneficial effect on menstrual symptoms. The small sample studied here does not permit further speculation and it would be of interest to look for similar differential results in future work.

## Summary and Conclusions

1. Trancopal was given in doses of 100 mg. four times daily to 52 adolescents and 23 adults with regularly occurring dysmenorrhea.
2. In a total of 125 menstrual periods complete or moderate relief was obtained in 86.4 per cent and slight or no relief in 13.6 per cent.
3. Trancopal was preferred to previous medication by 69.33 of the 75 women.
4. These preliminary observations show Trancopal to be a very satisfactory agent in treating symptoms of dysmenorrhea and warrant further clinical study with this new preparation.

## BIBLIOGRAPHY

1. Heald, Felix P. Jr., Masland, R. P. Jr., Somers, S. H., and Gallagher, J. R.: Dysmenorrhea in adolescence. *Pediatrics* 30: 121, July, 1957.
2. Bernstein, Irving C.: Psychiatric aspects of dysmenorrhea. *Postgrad. Med.* 20: 532, Nov., 1956.
3. Gerstle, Mark L.: Dysmenorrhea: a psychosomatic challenge. *J. Maine M.A.* 48: 12, Jan., 1957.
4. Golub, Leib J., Lang, W. R., Menduke, H., and Gordon, H. C.: Teenage dysmenorrhea; a statistical evaluation of the role of suggestion in treatment. *Am. J. Obst. & Gynec.* 74: 591, Sept., 1957.
5. Schmitz, Herbert E., and Isaacs, J. H.: The office treatment of primary dysmenorrhea. *M. Clin. North America* 42: 273, Jan., 1958.
6. Editorial: Dysmenorrhea. *J.A.M.A.* 168: 1660, Nov. 22, 1958.
7. Chamblin, William D., and Corbit, J. D. Jr.: Chlorpromazine and chlorpromazine combinations in the treatment of dysmenorrhea. *Am. J. Obst. & Gynec.* 74: 419, Aug., 1957.
8. Dixon, Noah M.: Meprobamate, a clinical evaluation. *Ann. New York Acad. Sc.* 67: 772, May 9, 1957.
9. Gesler, R. M., and Surrey, A. R.: The central depressant profile of some substituted methathiazanones. *J. Pharm. & Exper. Therap.* 122: 517, Apr., 1958.
10. Gesler, R. M., and Coulston, F.: Pharmacologic and toxicologic studies of two new centrally acting skeletal muscle relaxants, chlormethazone and dichlormethazone. *Toxicol. & Pharmacol.* 1: 168, Mar., 1959.
11. Lichtman, A. L.: New developments in muscle relaxant therapy. *Kentucky Acad. Gen. Pract. J.* 4: 28, Oct., 1958.
12. Shanaphy, J. F.: Chlormethazone (Trancopal) in the treatment of dysmenorrhea: a preliminary report. Submitted for publication.
13. Golub, L. J., Lang, W. R., and Menduke, H.: The incidence of dysmenorrhea in high school girls. *Postgrad. Med.* 23: 38, Jan., 1958.

Medical Arts Building, McAlester, Oklahoma



## Dyspnea in Congestive Heart Failure

**SHORTNESS OF BREATH** is one of the earliest symptoms of congestive heart failure<sup>1</sup> and it often antedates measurable deviations in cardiopulmonary function. Dyspnea is a sensation common to most normal people after strenuous exercise and therefore its significance must be assessed relative to the degree of exertion producing it and the previous exercise tolerance of the subject.

Though dyspnea is a sensation and must have neuro-anatomical components, the peripheral sensory receptors and central connections are not precisely known.<sup>2</sup> Special sensory pathways might be involved or qualitative or quantitative alterations in the normal mechanical and chemoreceptors governing the rate and depth of breathing might lead to the awareness of respiratory difficulty. The lack of parallel between the objective and subjective evidence of dyspnea indicates that marked inequality between sensory stimulation and central perception and response exists in many patients. The words "shortness of breath" or "dyspnea" are often supplied to patients by their physicians and careful attention to detail is essential in eliciting the precise character of the complaints. Smothering, a feeling of suffocation, or the subjective inability to get sufficient air certainly constitutes true dyspnea. This may be confused with the desire to increase the depth of respiration, with fatigue and generalized weakness or localized chest weakness. Tachycardia may also produce chest discomfort and chest pain

**T. EDWARD CUDDY, M.D.**

T. Edward Cuddy, M.D., graduated from the University of Manitoba in 1954. He is a Fellow of the Royal College of Physicians of Canada. This paper was written during the tenure of a Daland Fellowship for Research in Clinical Medicine, in the Department of Medicine, University of Oklahoma School of Medicine. Doctor Cuddy is now a Fellow of the National Heart Foundation of Canada in the Department of Clinical Research at the Winnipeg General Hospital, and the University of Manitoba, Winnipeg, Canada.

This paper is from the Department of Medicine of the University of Oklahoma School of Medicine and the Medical Service, Veterans Administration Hospital, Oklahoma City, Oklahoma.

itself may be the basis of the thoracic distress rather than true shortness of breath.

Dyspnea is a manifestation of respiratory insufficiency<sup>3, 4</sup> and a consideration of the functional disturbance of respiration in congestive heart failure may help to clarify it.

A reduction of the vital capacity was one of the earliest pulmonary abnormalities demonstrated in congestive heart failure.<sup>5</sup> This may be due to vascular congestion and reduced distensibility of the lung.<sup>6, 7</sup> Total lung capacity, functional residual capacity, and residual volume are usually normal until failure becomes severe<sup>8, 9</sup> and are more abnormal in hypertensive heart disease than in mitral stenosis.<sup>10</sup> In addition to vascular congestion, encroachment on the lungs by a large heart, pleural effusion, or elevated

diaphragms, and respiratory muscle fatigue may further reduce pulmonary volumes.<sup>8, 11</sup> Lung volumes may be normal in the presence of pronounced dyspnea and are only consistently abnormal when failure is severe.

Hyperventilation also has long been known as a feature of cardiac dyspnea and is associated with a low arterial CO<sub>2</sub> content,<sup>12</sup> a low CO<sub>2</sub> tension and an elevated arterial pH.<sup>13</sup> Despite an elevation in BMR<sup>11</sup> there is an increase in ventilation per unit of oxygen consumed.<sup>15</sup> The exact mechanism of these adjustments is uncertain. Experimental pulmonary congestion has been shown to be associated with increased pulmonary stretch-fibre activity,<sup>16</sup> but accentuation of the Hering-Breuer reflex is not the sole explanation in man.<sup>17</sup> Arterial oxygen tension is reduced, though oxygen saturation is relatively normal. This suggests perfusion of poorly ventilated segments of lung such as the congested lung bases in the upright position.<sup>13, 18</sup>

The maximal breathing capacity and timed vital capacity are usually not reduced to the extent seen in pulmonary disease. It has been suggested that cardiac asthma and obstructive breathing is more commonly seen in hypertensive heart disease than in rheumatic heart disease.<sup>10</sup> Only in severe failure and pulmonary edema is airway obstruction a consistent finding.

The force exerted by the respiratory muscles on the lungs has been indirectly measured with safety by the use of an intra-esophageal balloon.<sup>19, 20</sup> Measurement of the change in lung volume in relation to the pressure necessary to produce it has permitted the calculation of distensibility or compliance. The resistance of the airways and the viscous elements of the lung and the total work of breathing also can be determined. Pulmonary compliance or distensibility is roughly proportional to the reduction in lung volume in heart failure<sup>7, 21</sup> in vital capacity,<sup>7</sup> and total lung capacity.<sup>22</sup> Airway resistance is usually but slightly increased<sup>7, 21</sup> but may be abnormal in hypertensive heart disease.<sup>10</sup> It is always abnormal with pulmonary edema<sup>23</sup> and is increased in the supine compared to the sitting position.<sup>24</sup> The total work of breathing

is abnormally high in congestive failure and it has been shown that the force applied to the lungs of cardiacs may be extremely high at levels of exertion causing no dyspnea in normal subjects.<sup>25</sup> However, normal subjects experience dyspnea when the intrapleural force is elevated to a similar degree, though the exertion necessary to produce it is much greater. It has been suggested that the pattern of shallow, rapid breathing seen in congestive heart failure may be mechanically advantageous in terms of energy expended in the face of decreased distensibility and maintaining adequate alveolar ventilation.<sup>26</sup>

The abnormal mechanics of breathing may be the result of many factors. Experimentally<sup>27, 28</sup> and clinically,<sup>29, 30</sup> any procedure increasing pulmonary blood volume and producing pulmonary congestion has resulted in reduced distensibility. Elevation of pulmonary vascular pressure is not closely related to reduced pulmonary compliance.<sup>21, 31</sup> Pulmonary congestion is associated with edema of the alveolar septae, fluid exudation into the alveoli and finer respiratory airways and if congestion is chronic as in mitral stenosis, fibrosis of the alveolar septae and thickening of the smaller blood vessels may be found.<sup>32, 33</sup> Changes in fluid air interfaces in the lungs may increase their resistance to change in shape due to increased surface tension.<sup>34</sup> All these changes may act to diminish lung distensibility and increase resistance to movement of air in and out of the lungs and they also may act to impede the passage of oxygen from the alveoli to the capillary blood. Thus reduction in the diffusing capacity for oxygen and an increase in the alveolar-arterial gradient for oxygen have been demonstrated in moderate and severe congestive failure.<sup>13, 18</sup> Though hyperventilation may partially compensate for these abnormalities, uneven distribution of inspired air and diminished ventilation of the dependent more congested portions of the lungs may further aggravate the situation. Increased lymphatic drainage may partially offset the effects of pulmonary plethora and vascular hypertension.<sup>35</sup> Even the fluid of a hydrothorax is not static but is in constant equilibrium apparently through lymphatic drain-



age.<sup>36</sup> Because of the increase in mechanical resistance and work of breathing in congestive failure, it is not surprising that the oxygen cost of ventilation is increased.<sup>37</sup> It is speculated, further, that the efficiency of the respiratory muscles to handle added airway resistance by increasing their oxygen consumption is reduced in congestive failure as it is in pulmonary disease.<sup>38</sup>

It may be concluded that clinical disability due to dyspnea may precede known abnormalities of pulmonary function. In mild to moderate congestive failure one usually finds hyperventilation with a slightly reduced arterial oxygen tension, a normal or low arterial CO<sub>2</sub> tension, a reduced vital capacity, decreased distensibility and increased work and oxygen cost of breathing. The dyspnea of cardiac failure may best be related to the altered mechanical properties of the lung. Subjective improvement in dyspnea after successful mitral commissurotomy, however, has very often occurred despite no change in pulmonary function or distensibility.<sup>31</sup> Cardiac asthma and obstructive breathing may be more common in hypertensive than in rheumatic heart disease. In the absence of pulmonary edema, however, signs of diffuse obstructive disease with reduced timed vital capacity, diminished maximal breathing capacity, and arterial hypoxemia with retention of CO<sub>2</sub> strongly point to primary pulmonary disease.

Changes in pulmonary function and vascular dynamics may be elicited early in congestive failure by making these measurements during exercise. Further investigations of the neurological origin, mediation, and perception of dyspnea are sorely needed to fully understand this familiar but mysterious symptom.

#### REFERENCES

- Lewis, Sir Thomas: Diseases of the Heart, 5th Edition. London, Macmillan, 1943.
- Comroe, J. H.: Dyspnea. Mod. Concepts Cardiovas. Dis. 25: 347, 1956.
- Riley, R. L.: The differentiation of cardiac and pulmonary dyspnea. Mod. Concepts of Cardiovas. Dis. 17: July 1948.
- Baldwin, de F., Courmand, A. and Richards, D. W. Jr: Pulmonary Insufficiency. X. Physiological classification, clinical methods of analysis, standard values in normal subjects. Medicine 27: 243, 1948.
- Peabody, F. W. and Wentworth, J. A.: Clinical studies on the respiration: IV. The vital capacity of the lungs and its relation to dyspnea. Arch. Int. Med. 20: 443, 1917.
- Christie, R. V. and Meakins, J. C.: The intrapleural pressure in congestive heart failure and its clinical significance. J. Clin. Invest. 13: 323, 1934.
- Brown, C. C., Fry, D. L. and Ebert, R. V.: The mechanics of pulmonary ventilation in patients with heart disease. Am. J. Med. 17: 438, 1954.
- West, J. R., Bliss, H. A., Wood, J. A. and Richards, D. W. Jr.: Pulmonary function in rheumatic heart disease and its relation to exertional dyspnea in ambulatory patients. Circulation 8: 178, 1953.
- Frank, N. R., Cugell, D. W., Gaensler, E. A. and Ellis, L. B.: Ventilatory studies in mitral stenosis. A comparison with findings in primary pulmonary disease. Am. J. Med. 15: 60, 1953.
- Cosby, R. S., Stowell, E. C., Hartwig, W. R. and Mayo, M.: Pulmonary function in left ventricular failure with cardiac asthma. Circulation 15: 492, 1957.
- Meakins, J. C. and Christie, R. V.: The lung volume and its variations. Ann. Int. Med. 3: 423, 1929.
- Cullen, G. E., Harrison, T. R., Calhoun, J. A., Welkins, W. M. and Trums, M. M.: Studies in congestive heart failure. XIII. Relation of dyspnea to the oxygen saturation and acid-base condition of the blood. J. Clin. Invest. 10: 807, 1931.
- Carroll, D.: Oxygen tension and acid-base adjustment in cardiac failure. Bull. Johns Hopkins Hosp. 103: 242, 1958.
- Peabody, F. W. and Parker, B. I.: Clinical studies on respiration. V. The basal metabolism and the minute volume of the respiration of patients with cardiac disease. Arch. Int. Med. 20: 468, 1917.
- Barr, D. P. and Peters, J. P.: Studies of the respiratory mechanism of cardiac dyspnea. III. The effective ventilation in cardiac dyspnea. Am. J. Physiol. 54: 345, 1920.
- Marshall, R. and Widdicombe, J. G.: The activity of pulmonary stretch receptors during congestion of the lungs. Quart. J. Exper. Physiol. 43: 320, 1958.
- Marshall, R. and Widdicombe, J. G.: The weakness of the Hering-Breuer reflexes in man. J. Physiol. 140: 36P, 1958.
- Carroll, D., Cohn, J. E. and Riley, R. L.: Pulmonary function in mitral valve disease: Distribution and diffusion characteristics in resting patients. J. Clin. Invest. 32: 510, 1953.
- Dornhorst, A. C. and Leathart, G. L.: A method of assessing the mechanical properties of the lungs and air passages. Lancet 2: 109, 1952.
- Fry, D. L., Stead, W. W., Ebert, R. V., Lubin, R. I. and Wells, H. S.: The measurement of intra-esophageal pressure and its relationship to intrathoracic pressure. J. Lab. & Clin. Med. 40: 664, 1952.
- Frank, N. R., Lyons, H. A., Siebens, A. A. and Nealon, T. F.: Pulmonary compliance in patients with cardiac disease. Am. J. Med. 22: 516, 1957.
- Frank, N. R., Mead, J., Siebens, A. A. and Storey, C. F.: Measurements of pulmonary compliance in seventy healthy young adults. J. Applied Physiol. 9: 38, 1956.
- Sharp, J. T., Griffith, G. T., Bunnell, I. L. and Greene, D. G.: Ventilatory mechanics in pulmonary edema in man. J. Clin. Invest. 37: 111, 1958.
- Cherniack, R. M., Cuddy, T. E. and Armstrong, J. A.: Significance of pulmonary elastic and viscous resistance in orthopnea. Circulation 15: 859, 1957.
- Marshall, R., Stone, R. W. and Christie, R. V.: The relationship of dyspnea to respiratory effort in normal subjects, mitral stenosis and emphysema. Clin. Sc. 13: 625, 1954.
- Marshall, R., McIlroy, M. B. and Christie, R. V.: The work of breathing in mitral stenosis. Clin. Sc. 13: 137, 1954.
- Heyer, H. E., Holman, J. and Thires, G. T.: The diminished efficiency and altered dynamics of respiration in pulmonary congestion. Am. Heart J. 35: 463, 1948.
- Mack, I., Grassman, M. and Katz, L. N.: The effect of pulmonary congestion on the distensibility of the lungs. Am. J. Physiol. 150: 654, 1947.
- Pryor, W. W., Hickam, J. B., Sieker, H. O. and Page, E. B.: The effect of circulatory changes on the pulmonary compliance of normal subjects and patients with mitral stenosis. Circulation 15: 721, 1957.
- Bondurant, S., Hickman, J. B. and Isley, J. K.: The pulmonary and circulatory effects of acute pulmonary vascular engorgement in normal subjects. J. Clin. Invest. 36: 59, 1957.
- Saxton, G. A., Rabinowitz, M., Dexter, L. and Haynes, F.: The relationship of pulmonary compliance to pulmonary vascular pressures in patients with heart disease. J. Clin. Invest. 35: 611, 1956.
- Parker, F. and Weiss, S.: The nature and significance of structural changes in the lungs in mitral stenosis. Am. J. Path. 12: 573, 1936.
- Smith, R. C., Burchell, H. B. and Edwards, J. E.: The pathology of the pulmonary vascular tree. IV. Structural changes in pulmonary vessels in chronic left ventricular failure. Circulation 10: 801, 1954.
- Mead, J., Whittenberger, J. L. and Radford, E. P. Jr.: Surface tension as a factor in pulmonary volume-pressure hysteresis. J. Appl. Physiol. 10: 191, 1957.
- Drinker, C. K.: The clinical physiology of the lungs. Thomas, C. C., Illinois, 1954.
- Scholer, J. F., Lee, P. R., Higgins, J. A. and Code, C. F.: Unpublished data—cited by Race, G. A., Scherfley, C. H. and Edwards, J. E.: Hydrothorax in congestive heart failure. Am. J. Med. 22: 83, 1957.
- Courmand, A., Richards, D. W. Jr., Bader, M. E. and Fishman, A. P.: The oxygen cost of breathing. Tr. A. Am. Physicians 67: 162, 1954.
- Cherniack, R. M.: The oxygen consumption and efficiency of the respiratory muscles in health and emphysema. J. Clin. Invest. 38: 494, 1959.

Winnipeg General Hospital, Winnipeg 3, Manitoba



# PLEURAL EFFUSION:

## A Study of the Literature

Concluded\*

### Pleural Biopsy

THE INABILITY to arrive at a definite diagnosis in cases of pleural effusion or pleural thickening by conventional methods, such as study of the fluid and roentgenography, has led to use of biopsy of the parietal pleura. This may be performed by open surgical technique or needle biopsy. The surgical biopsy is performed by making an open incision of several centimeters length along an intercostal space, grasping the exposed parietal pleura and excising a piece of it. Suction may be immediately applied to the opening to minimize pneumothorax and the opening is closed by sutures. Morbidity is slight and mortality is essentially nil. Histological diagnosis may thus be made and sometimes bacteriologic diagnosis also.<sup>71, 72, 73</sup>

Sutliff et al,<sup>71</sup> in 1954, first reported *surgical biopsy* of the parietal pleura and were able to obtain the diagnosis by microscopic and bacteriologic examinations in a phenomenal 20 of 21 cases. Another group<sup>72</sup> was able to obtain the diagnosis in 20 of 50 surgical biopsies.

Donohoe et al,<sup>74</sup> have reported 54 surgical

JAMES R. LOWELL, M.D.

A graduate of the University of Oklahoma School of Medicine in 1953, James R. Lowell, M.D., limits his practice to his specialty of Internal Medicine. In addition to his private practice, he is an Instructor in Medicine at his school of graduation.

Doctor Lowell is a member of the American Trudeau Society.

biopsies of the pleura. Twenty-one of these had had previous aspiration biopsies which had yielded an inadequate specimen or a diagnosis of "nonspecific pleuritis." Twenty-eight of these 54 cases were found to be granulomas or malignancies and a definite diagnosis could not be made by biopsy in the other 26.

Needle biopsy of the parietal pleura was first reported by DeFrancis et al,<sup>75</sup> in 1955 and, because it is a much less difficult procedure than surgical biopsy, the literature has since been generously supplied with series of cases.<sup>21, 74, 76, 77, 79, 80, 81, 82, 83</sup> The Vim-Silverman needle has generally been used as described originally by DeFrancis. However, entirely different types of needles have been described by Abrams<sup>84</sup> and Cope<sup>85</sup> which are more practical.

\*Part I appeared in the August issue of *The Journal*.

TABLE V  
NEEDLE BIOPSIES

Author, Year	Number Patients Biopsies		Cases Diagnosed	Gran- uloma	Malignancy	Diagnosis		Insufficient Specimen
						Nonspecific pleuritis	Normal	
(Heller, Kellow & Chomet, 1956)* <sup>76</sup>	20	22	9 (45%)*	5	4	9	—	2
Heller, Kellow & Chomet, 1957 <sup>77</sup>	45	79	14 (31%)	6	8	28	—	3
(Donohoe, Katz & Matthews, 1957)* <sup>21</sup>	45		20 (44%)	—	—	—		12
Donohoe, Katz & Matthews, 1958 <sup>78</sup>		78	30 (38%)	22	8	29	1	18
(Mestitz, Pollard & Purves, 1957)* <sup>79</sup>	116		72 (62%)	60	12	35		9
Mestitz, Purves & Pollard, 1958 <sup>80</sup>	152		97 (64%)	70	20			2
Harvey & Harvey, 1958 <sup>81</sup>		42	14 (33%)	8	6			
Welsh, 1958 <sup>82</sup>	17		10 (59%)		10			
Weiss, 1958 <sup>83</sup>	31	31+	23 (74%)					

\*Cases apparently included in later series.

\*\*Number of patients used as denominator when stated. Otherwise number of biopsies used as denominator.

The results obtained by various authors performing needle biopsies of the pleura are summarized in Table V.

Because biopsy of the pleura is a valuable addition to our diagnostic armamentarium its use is becoming more common and its exact place must be found.

Needle biopsy should be performed with the precautions of normal blood coagulation, careful selection of the biopsy site by fluoroscopy, and the lung should be separated from the chest wall.<sup>77</sup> The complications are few and of minimal seriousness and the morbidity no greater than for thoracentesis. There should be no fear of spreading malignancy along the needle tract.

Due to the small specimen of tissue obtained by needle biopsy there is probably a limit to the diagnostic efficacy of this procedure. Even though the parietal pleura might be thickly studded with tubercles or malignant implants a diagnosis cannot be made if the few square millimeters of pleura obtained is not so involved. Because of the much larger specimen obtained by surgical biopsy, somewhat better results are to be expected. Success in some cases of surgical biopsy after the failure of needle biopsy has been shown.<sup>21, 78</sup> Breckler et al,<sup>73</sup> performed both needle and open surgical biopsy on five patients and then stated: "The open biopsy was no more difficult and tissue specimens obtained were so superior that the needle biopsy method was abandoned." These authors were able to perform surgical biopsy under local anesthesia through an incision only three to four cms. long, allow ambulation the

same day and observed no ill effects. However, open surgery is generally not advised in the initial attempt at biopsy because it necessitates the presence of a qualified surgeon, an operating room, and is a more formidable procedure than the needle biopsy with which any physician can become competent.

Although some authors would perform needle biopsy at the time of the first diagnostic thoracentesis in any case<sup>78</sup> there are some cases where the diagnosis appears obvious and this procedure may be omitted. However, generally the following diagnostic approach of Donohoe<sup>86</sup> is advisable: "At the time of the initial thoracentesis, aspiration biopsy should be performed. If a specific cause is determined, no further diagnostic studies would be needed and appropriate treatment may be instituted. If such a specimen is either inadequate or inconclusive, either a repeat aspiration biopsy is in order or surgical biopsy through a small intercostal approach should be undertaken. A frozen section should be obtained and if a specific cause is demonstrable, the incision may be closed. If the result is not diagnostic, then the surgeon should extend the incision and full exploration with appropriate biopsy and/or resection can then be carried out, followed subsequently with appropriate treatment."

#### Other Examinations

Diagnostic procedures should not be limited to radiographs, fluid examinations and pleural biopsy. Sputum should be studied

for various pathogens, including particularly tubercle bacilli, in appropriate cases. Cytological examination of the sputum may also be very helpful. Bronchoscopy is indicated in many cases. The tuberculin test, if negative, using *fresh* material in *full* strength will virtually rule out tuberculosis as the etiology.<sup>19, 61</sup>

Thoracoscopy, with biopsy when feasible, has been suggested as a more precise method of diagnosis than has previously been available. Lloyd<sup>67</sup> performed this procedure in 23 consecutive, unselected cases of undiagnosed pleural effusions without complications. Twelve of 16 such biopsies yielded diagnostic material and in others "gross findings were of great value in respect both to diagnosis and to essential therapy." However, he stresses that it must be performed before a coagulum forms on the pleural surface. Fleishman et al,<sup>68</sup> were able to make a diagnosis of tuberculosis by thoracoscopy with biopsy in 28% of cases where other procedures had failed.

Although many procedures for diagnosis have been discussed it is not uncommon that the ultimate one, thoracotomy, must be performed. Although there is some morbidity and discomfort invariably associated with thoracotomy its influence on diagnosis and therapy may be invaluable. Unfortunately, even this sometimes fails to be helpful.<sup>69</sup>

### Therapy

Therapy in cases of pleural effusions consists of two phases: (1) removal of fluid and; (2) treating the underlying cause.

Pleural fluid is removed for the following reasons: (1) diagnosis; (2) therapy, and; (3) to prevent fibrothorax. Diagnostic aspects have been discussed. Therapeutically it improves respiration and may reduce toxicity.<sup>56</sup>

In cases of intrapleural fluids, especially exudates or hemothorax, there may be organization on the pleural surface of some of the precipitated protein. With passage of time this becomes more fibrous and, if extensive, may cause considerable pulmonary insufficiency due to restriction of the underlying lung. If this situation results then de-

cortication of the pleura may be necessary. However, aspiration of as much of the fluid as possible, and repeating aspiration if necessary, to keep the pleura "dry" will help to prevent this complication. Streptokinase-streptodornase mixtures may be useful, if the cellular or protein content of the fluid is high, by making more complete aspiration of the fluid possible.

The method of thoracentesis is essentially the same whether done for diagnostic or therapeutic purposes. This procedure will not be discussed since it is adequately described in many texts.

### Treatment of Malignant Pleural Effusions

Discussion of treatment of the *underlying cause* of the pleural effusion is largely self-explanatory and considering the large number of causes listed in Table II is too great a task to be attempted here. However, an exception will be made in the case of malignant pleural effusions.

In order to cope with the large and rapidly recurring pleural effusions sometimes associated with malignancies, radioactive gold ( $\text{Au}^{198}$ ) colloid has been used intrapleurally. This is administered through a thoracentesis needle by use of special equipment necessary to prevent excessive radiation exposure to personnel. The exact mechanism of action is not definitely known. Various studies reveal "good" or "fair" inhibition of fluid formation in slightly over half of all cases treated.<sup>90, 91, 92, 93, 94, 95</sup> The best results appear to be when the primary malignancy is of the breast.<sup>92, 93, 94, 95, 96</sup> Radioactive gold colloid should not be considered as a method of treating the malignancy but as a means of keeping one of its complications—pleural effusion—under reasonable control. Sometimes it will make it unnecessary to perform additional thoracenteses although many had been done before. A second instillation of  $\text{Au}^{198}$  colloid is also sometimes helpful if there is some recurrence of fluid following the first one.

Jacobs<sup>97</sup> has reported the use of radioactive chromic phosphate ( $\text{Cr P}^{32}\text{O}_4$ ) in 41 cases of malignant pleural effusions. The 61% "good" results obtained compare favorably with  $\text{Au}^{198}$  colloid but the real ad-



vantages are that Cr P<sup>32</sup>O<sub>4</sub> is simpler to handle, safer and less expensive.

Nitrogen mustard has also been administered intrapleurally in malignant pleural effusions. A technique similar to Weisberger et al's<sup>98</sup> is recommended. There is less nausea, vomiting and leukopenia with intrapleural than with intravenous nitrogen mustard.<sup>98</sup> A comparison of the efficacy of Au<sup>198</sup> colloid with nitrogen mustard showed no significant difference.<sup>96</sup> However, it has been said that nitrogen mustard is superior to radioactive gold colloid since it is "easier and simpler to administer, no special facilities are required for its use, the drug is always available, it is less expensive to the patient, and it is not as dangerous to personnel involved."<sup>98</sup> Therefore, nitrogen mustard may be considered the "treatment of choice" for malignant pleural effusions although alternation with a radioactive agent (Cr. P<sup>32</sup>O<sub>4</sub> or Au<sup>198</sup>) may be of further advantage.

Bateman et al,<sup>99</sup> have reported the intrapleural instillation of 10 to 30 mg. of triethylene thiophosphoramide (Thio TEPA) for malignant pleural effusions. "Control" of the effusions for one to nine months was obtained in 10 of 17 patients with breast or ovarian cancers.

Treatment of malignant pleural effusions has also been attempted by surgical means. MacQuigg<sup>100</sup> stated, "We believe that it is mandatory when a thorax is opened for what proves to be irresectable malignancy, or for any other condition which may cause recurrent pleural effusions or empyema, that the surgeon obliterate the pleural cavity before closing the thorax by abrading all parietal surfaces with dry gauze." He claimed there was no significant loss in pulmonary function by this procedure. Chambers<sup>101</sup> obtained successful control of malignant pleural effusions in 17 of 20 cases by the injection of a talc suspension into the pleural space.

Another method used in an attempt to cope with malignant pleural effusions is by the use of hollow glass buttons.<sup>102, 103</sup> These are surgically placed in the chest wall so that the fluid may drain subcutaneously. Ample evaluation of this method has not yet been made.

## BIBLIOGRAPHY

1. Hinshaw, H. C. and Garland, L. H.: Diseases of the Chest. Philadelphia, W. B. Saunders Co., 1956, pp. 686.
2. Clauss, H. Yacoubian and Barker, H. G.: Dynamics of Pleural Effusions. Surg. Forum 7: 201-4, 1957.
3. Tinney, W. S. and Olsen, A. M.: The significance of fluid in the pleural space. J. Thor. Surg. 14: 248-52, June, 1945.
4. Engelhardt, H. T. and Wilson, J. L.: Some observations on the etiological significance of fluid in the pleural spaces. South. M. J. 40: 1023-1025, Dec., 1947.
5. Sahn, S. H., Leichterling, M. and Bass, H. E.: The significance of pleural effusion in patients past the age of fifty. N. England J. Med. 246: 927-8, June 12, 1952.
6. Leuallen, E. C. and Carr, D. T.: Pleural effusion. N. England J. Med. 252: 79-83, Jan. 20, 1955.
7. Myerson, R. M.: Pleural effusion. A statistical analysis of 100 cases in which thoracentesis was performed. Delaware Med. J. 28: 87-90, Apr., 1956.
8. Robertson, R. F.: The clinical and cytological investigation of pleural effusion. Edinburgh Med. J. 61: 37-49, Feb., 1954.
9. Major, R. H.: Physical diagnosis, Philadelphia, W. B. Saunders Co., 1947.
10. Shane, S. J.: Pleurisy with effusion—its significance and modern treatment. Canad. J. Pub. Health 47: 63-8, Feb., 1956.
11. Rossing, R. G.: Idiopathic pleural effusion. Minnesota Med. 38: 613-7, Sept., 1955.
12. Skaggs, J. T. and Smiley, G. W.: The course of idiopathic pleural effusion in fifty patients. Am. Rev. Tuberc. 72: 647-52, Nov., 1955.
13. McPeak, E. M. and Levine, S. A.: The preponderance of right hydrothorax in congestive heart failure. Ann. Int. Med. 25: 916-27, Dec., 1946.
14. Rabin, C. B. and Blackman, N. S.: Bilateral pleural effusion. J. Mount Sinai Hosp. 24: 45-53, Jan.-Feb., 1957.
15. Paterson, R. C.: The pleural reaction to inoculation with tubercle bacilli in vaccinated and normal guinea pigs. Am. Rev. Tuberc. 1: 353-71, Aug., 1917.
16. Stead, W. W., Eichenholz, A. and Stauss, H. K.: Operative and pathologic findings in twenty-four patients with syndrome of idiopathic pleurisy with effusion, presumably tuberculous. Am. Rev. Tuberc. 71: 473-502, Apr., 1955.
17. Prior, J. A.: Primary pleural effusion. Ohio Med. J. 53: 1030-1, Sept., 1957.
18. Myers, J. A.: Tuberculous pleurisy with effusion. Arch. Int. Med. 96: 191-201, Aug., 1955.
19. Falk, A.: The prognostic significance of idiopathic pleural effusion. Dis. Chest. 18: 542-61, Dec., 1950.
20. Schmidt, W. R.: Diagnosis and management of pleural effusion. Minnesota Med. 40: 104-6, Feb., 1957.
21. Donohoe, R. F., Katz, S. and Matthews M. J.: Aspiration biopsy of the parietal pleura. Am. J. Med. 22: 883-893, June, 1957.
22. Frostad, S.: The prognosis of tuberculous pleurisy. Acta med. scand. 139: 341-57, 1951.
23. Emerson, P. A.: Tuberculous pleural effusions treated with streptomycin, para-aminosalicylic acid, and early aspiration. Q. J. Med., Oxf. 24: 61-76, Jan., 1955.
24. Roper, W. H. and Waring, J. J.: Primary serofibrinous pleural effusion in military personnel. Am. Rev. Tuberc. 71: 616-32, 1955.
25. Bacharach, T.: Pleural effusion. Med. Bull. U. S. Army Europe 13: 252-7, Nov., 1956.
26. Peterson, J. E.: The management of pleurisy with effusion. Med. Arts & Sc. 8: 80-3, 1954.
27. Mandel, W., Marilley, R. J., Jr. and Gaines, L. M., Jr.: A checklist for the diagnosis of 'idiopathic' pleural effusion. Am. Practitioner 7: 1420-3, Sept., 1956.
28. Kaunitz, J.: Landmarks in simple pleural effusions. J. Am. Med. Assn. 113: 1312-14, Sept. 30, 1939.
29. Markovits, E.: Visceral radiology, New York, The Macmillan Co., 1951, pp. 594.
30. Barry, W. F., Jr.: Intrapulmonary pleural effusion. Radiology 66: 740-3, May, 1956.
31. Wilson, J. W.: Diagnosis of intrapulmonary pleural effusion. J. Am. Med. Assn. 158: 1423-7, Aug. 20, 1955.
32. Hessen, I.: Roentgen examination of pleural fluid. Acta radiol. Suppl. 86, 1951.
33. Kaunitz, J.: Liquid levels and other liquid surfaces in pleural effusions. J. Thor. Surg. 4: 300-309, Feb., 1935.
34. Rigler, L. G.: Roentgenologic observations on the movement of pleural effusions. Am. J. Roent. 25: 220-9, Feb., 1931.
35. Rigler, L. G.: Roentgen diagnosis of small pleural effusions. J. Am. Med. Assn. 96: 104-8, Jan. 10, 1931.
36. Sante, L. R.: Roentgen-ray diagnosis of pleural effusions, general and local. J. Am. Med. Assn. 88: 215-18, Jan. 22, 1927.
37. Stewart, H. J.: Pleural effusion localized in an interlobar space. Am. Heart J. 4: 227-35, 1928.
38. Kiser, E. F.: Pleural effusion associated with congestive heart failure localized in an interlobar space. Am. Heart J. 4: 481-3, 1929.
39. Geffer, W. I., Boucot, K. R. and Marshall, E. W.: Localized interlobar effusion in congestive heart failure. Circulation 2: 336-43, Sept., 1950.
40. Feder, B. H. and Wilk, S. P.: Localized interlobar effusion in heart failure: phantom lung tumor. Dis. Chest 30: 289-97, Sept., 1956.
41. Higgins, J. A., Juergens, J. L., Bruwer, A. J. and Parkin, T. W.: Localized interlobar pleural effusion due to congestive heart failure. Arch. Int. Med. 96: 180-7, Aug., 1955.

42. Weiss, W., Boucot, K. R. and Geffer, W. I.: Localized interlobar effusion in congestive heart failure. *Ann. Int. Med.* 38: 1177-86, June, 1953.
43. Rigler, L. G.: A roentgen study of the mode of development of encapsulated interlobar effusions. *J. Thor. Surg.* 5: 295-303, Feb., 1936.
44. Laufer, S. T.: Interlobar pleural effusion associated with heart disease. *Nova Scotia Med. Bull.* 25: 229, 1946.
45. DiMaio, M.: Multiple localized pleura effusions as a manifestation of congestive heart failure. *New England J. Med.* 238: 502-6, Apr. 8, 1948.
46. Katz, S. and Reed, H. R.: Unusual pleural effusions. *Radiology* 45: 147-55, Feb., 1945.
47. Freedman, E.: Roentgenological appearance of interlobar and mediastinal encapsulated effusion in the thorax. *Radiology* 16: 14-29, Jan., 1931.
48. Storey, C. F.: Encapsulated pleural effusion simulating mediastinal tumor. *Radiology* 58: 408-14, Mar., 1952.
49. Friedman, R. L.: Intrapulmonary pleural effusions. *Am. J. Roent.* 71: 613-23, Apr., 1954.
50. Jones, D. B.: Basal pleural fluid accumulations resembling elevated diaphragms. *Radiology* 50: 227-33, Feb., 1948.
51. Fraser, J. W.: Encysted diaphragmatic pleural effusion. *Scot. Med. J.* 1: 212-6, June, 1956.
52. Cincotti, J. J., Allison, S. T. and Nilsson, J. M.: Pleural effusion simulating elevated diaphragm. *Am. Rev. Tuberc.* 58: 554-61, Nov., 1948.
53. Goldman, A. and Burford, T. H.: Cholesterol pleural effusion: a report of three cases with a cure by decortication. *Dis. Chest* 18: 586-94, Dec., 1950.
54. Paddock, F. K.: The diagnostic significance of serous fluids in disease. *New England J. Med.* 223: 1010-1015, Dec. 19, 1940.
55. Goldman, A.: Diagnosis and treatment of pleural effusions. *Med. Clin. N. Amer.* pp 502-12, Mar., 1945.
56. McKean, G. T.: Pleural fluid. *J. Michigan State Med. Soc.* 50: 1137-40, Oct., 1951.
57. Zinneman, H. H., Johnson, J. J. and Lyon, R. H.: Proteins and mucoproteins in pleural effusions. *Am. Rev. Tuberc.* 76: 247-55, Aug., 1957.
58. Phillips, S. K. and McDonald, J. R.: An evaluation of various examinations performed on serous fluids. *Am. J. Med. Sci.* 216: 121-127, Aug., 1948.
59. Carr, D. T. and Power, M. H.: Clinical value of measurements of concentration of protein in pleural fluid. *New England J. Med.* 259: 926-7, Nov. 6, 1958.
60. Watkins, M. D.: A comparison of proteins in serum and pleural fluid. *Brit. J. Tuberc.* 52: 170-6, Apr., 1958.
61. Andosca, J. B.: Some diagnostic problems of pleural effusions. *Am. Practitioner* 3: 285-90, Apr., 1952.
62. Robertson, R. F.: Pleural eosinophilia. *Brit. J. Tuberc.* 48: 111-9, Apr., 1954.
63. Berliner, K.: Hemorrhagic pleural effusion: an analysis of 120 cases. *Ann. Int. Med.* 14: 2266-84, 1941.
64. Graham, G. G., McDonald, J. R., Clagett, O. T. and Schmidt, H. W.: Examination of pleural fluid for carcinoma cells. *J. Thor. Surg.* 25: 365-70, Apr., 1953.
65. Childers, J. H.: Cytologic studies on pleural and peritoneal fluids. *Texas J. Med.* 51: 674-8, Oct., 1955.
66. Calnan, W. L., Winfield, B. J. O., Crowley, M. F. and Bloom, A.: Diagnostic value of the glucose content of serous pleural effusions. *Brit. Med. J.* 1: 1239-40, June 2, 1951.
67. Barber, L. M., Mazzadi, L., Deakins, D. D., Reese, C. N. and Rogers, W. L.: Glucose level in pleural fluid as a diagnostic aid. *Dis. Chest* 31: 680-686, June, 1957.
68. Peterson, J. E.: Quantitative sugar estimations in pleural fluid—an aid to diagnosis. *Med. Arts & Sc.* 2: 124-8, Oct., 1948.
69. Frew, H. W. O. and Campbell-Fowler, C.: Cholesterol pleural effusion. *Practitioner, Lond.* 176: 416-9, Apr., 1956.
70. Kalser, M. H., Roth, J. L. A. and Bockus, H. L.: Relapsing pancreatitis with pseudocyst of the pancreas and enzyme-containing pleural effusion. *Gastroenterology* 28: 842-50, May, 1955.
71. Sutliff, W. D., Hughes, F. and Rice, M. L.: Pleural biopsy. *Dis. Chest* 26: 551-7, Nov., 1954.
72. Hill, H. E., Hensler, N. M. and Breckler, I. A.: Pleural biopsy in diagnosis of effusions. *Am. Rev. Tuberc.* 78: 6-16, July, 1958.
73. Breckler, I. A., Hoffman, M. C., Hill, H. E., Hensler, N. M. and Hukill, P. B.: Pleural biopsy. *New England J. Med.* 255: 690-94, Oct., 1956.
74. Donohoe, R. F., Katz, S. and Matthews, M. J.: Pleural biopsy as an aid in the etiologic diagnosis of pleural effusion: review of the literature and report of 132 biopsies. *Ann. Int. Med.* 48: 344-62, Feb., 1958.
75. DeFrancis, N., Klosk, E. and Albano, E.: Needle biopsy of the parietal pleura. *New England J. Med.* 252: 948-9, June 2, 1955.
76. Heller, P., Kellow, W. F. and Chomet, B.: Needle biopsy of the parietal pleura. *New England J. Med.* 255: 684-90, Oct. 11, 1956.
77. Heller, P., Kellow, W. F. and Chomet, B.: Role of biopsy in the diagnosis of pleural disease. *J. Lancet* 77: 233-7, July, 1957.
78. Donohoe, R. F., Katz, S. and Matthews, M. J.: Pleural biopsy as an aid in the etiologic diagnosis of pleural effusion: review of the literature and report of 132 biopsies. *Ann. Int. Med.* 48: 344-62, Feb., 1958.
79. Mestitz, P., Pollard, A. C. and Purves, M. J.: Needle biopsy of the parietal pleura. *Lancet* 273: 873, Nov. 2, 1957.
80. Mestitz, P., Purves, M. J. and Pollard, A. C.: Pleural biopsy in the diagnosis of pleural effusion. *Lancet* 2: 1349-53, Dec. 27, 1958.
81. Harvey, C. and Harvey, H. P. B.: Subclavian lymph node, pleural and pulmonary biopsy in the diagnosis of intrathoracic disease. *Postgrad. Med. J., Lond.* 34: 204-9, Apr., 1958.
82. Welsh, J. D.: Parietal pleural needle biopsy. *Arch. Int. Med.* 101: 718-21, Apr., 1958.
83. Weiss, W.: Needle biopsy of the parietal pleura in tuberculosis. *Am. Rev. Tuberc.* 78: 17-20, July, 1958.
84. Abrams, L. D.: A pleural biopsy punch. *Lancet* 273: 30-1, Jan. 4, 1958.
85. Cope, C.: New pleural biopsy needle. *J. Am. Med. Assn.* 167: 1107-8, June, 1958.
86. Donohoe, R. F.: The role of pleural biopsy in the study of patients with pleural effusions. *Bull. Georgetown Univ. Med. Center* 10: 183-8, July, 1957.
87. Lloyd, M. S.: Thoracoscopy and biopsy in the diagnosis of pleurisy with effusion. *Quart. Bull. Sea View Hosp.* 14: 128-32, 1953.
88. Fleishman, S. J., Lichter, A. I., Buchanan, G. and Sichel, R. J. S.: Investigation of idiopathic pleural effusions by thoracoscopy. *Thorax* 11: 324-7, Dec., 1956.
89. Douglass, B. E., Carr, D. T. and Bernatz, P. E.: Diagnostic thoracotomy in the study of 'idiopathic' pleural effusion. *Am. Rev. Tuberc.* 74: 954-7, Dec., 1956.
90. Walton, R. J.: The palliative treatment of malignant pleural and peritoneal effusions with radio-active colloidal gold. *J. Fac. Radiologists, Lond.* 4: 130-3, Oct., 1952.
91. King, E. R., Spicer, D. W., Dowda, F. W., Bender, M. A. and Noel, W. E.: The use of radioactive colloidal gold ( $Au^{198}$ ) in pleural effusions and ascites associated with malignancy. *Am. J. Roent.* 68: 413-20, Sept., 1952.
92. Moses, C., Kent, E., Boatman, J. B., Cole, R. D., Sunder, J. H., George, R. S., Russ, C., Ford, W. B. and Kutz, E. R.: Experimental and clinical studies with radioactive colloidal gold in the therapy of serous effusions arising from cancer. *Cancer, Phila.* 8: 417-23, Mar.-Apr., 1955.
93. Simon, N.: Radioactive gold treatment: results in 85 effusions due to cancer. *J. Mount Sinai Hosp.* 22: 96-8, July-Aug., 1955.
94. Chang, C. H., Janzen, A. H., Korneck, A. B. and Rosenbaum, P. J.: Treatment of malignant effusions by intracavitary injection of radioactive colloidal gold. *Am. J. Roent.* 77: 486-92, Mar., 1957.
95. MacKay, N.: Radioactive colloidal gold in the treatment of pleural and peritoneal effusions of malignant origin. *Lancet* 273: 761-4, Oct. 19, 1957.
96. Bonte, F. J., Storaasli, J. P. and Weisberger, A. S.: Comparative evaluation of radioactive colloidal gold and nitrogen mustard in the treatment of serous effusions of neoplastic origin. *Radiology* 67: 63-6, July, 1956.
97. Jacobs, M. L.: Radioactive colloidal chromic phosphate to control pleural effusion and ascites. *J. Am. Med. Assn.* 166: 597-9, Feb. 8, 1958.
98. Weisberger, A. S., Levine, B. and Storaasli, J. P.: Use of nitrogen mustard in treatment of serous effusions of neoplastic origin. *J. Am. Med. Assn.* 159: 1704-7, Dec. 31, 1955.
99. Bateman, J. C., Moulton, B. and Larsen, N. J.: Control of neoplastic effusions by phosphoramide chemotherapy. *Arch. Int. Med.* 95: 713-719, May, 1955.
100. MacQuigg, R. E.: The induction of pleural symphysis with particular reference to therapy for irresectable malignancy. *Am. Surg.* 23: 1051-5, Nov., 1957.
101. Chambers, J. S.: Palliative treatment of neoplastic pleural effusion with intercostal intubation and talc instillation. *West. J. Surg.* 66: 26-8, Jan.-Feb., 1958.
102. Melick, D. W.: Glass button thoracic drainage for carcinomatous pleural effusion. *Am. Surgeon* 23: 1138-40, Dec., 1957.
103. Alexander, C. A.: Simple method of continuous thoracic drainage by use of glass button. *Am. J. Surg.* 86: 210-3, Aug., 1953.

1214 North Hudson, Oklahoma City, Oklahoma



# Aneurysms of the Aorta

**W**ITHIN THE PAST DECADE, the surgical treatment of aneurysms of the aorta has become a major medical advance. These lesions which had previously been but of academic and pathologic concern, have now become of major surgical interest.

It seems worth-while at this time to review the problems associated with aortic aneurysms and to present cases illustrating what may be achieved in the treatment of these lesions.

## Pathology

William Osler stated some five decades ago<sup>31</sup> that at least 90% of aortic aneurysms were located in the thoracic aorta and that nearly all of these were due to syphilis. A majority of patients were individuals in their fourth and fifth decades of life and in many instances the victim was a Negro. Many authors now report an increasing incidence of arteriosclerotic aneurysms in the abdominal aorta which appear in individuals particularly in their sixth and seventh decades and in increasing frequency in the abdominal aorta.<sup>4, 9, 12, 20, 23, 29, 39, 40</sup> This changing pattern of disease reflects the generally increasing age of our population and a notable reduction in the morbidity from syphilis. Finally, traumatic aneurysms of the

M. NAZIH ZUHDI, M.D.

JOHN M. CAREY, M.D.

ALLEN E. GREER, M.D.

Certified by the American Board of Surgery. M. Nazih Zuhdi, M.D., graduated from the American University of Beirut, Lebanon in 1950. He is a member of the American Heart Association.

This paper was presented at the 53rd Annual Meeting of the Oklahoma State Medical Association in Tulsa, April 21, 1959.

John M. Carey, M.D., graduated from Harvard Medical School in 1945. He specializes in Thoracic Surgery and is an Instructor in Surgery at the University of Oklahoma School of Medicine.

Doctor Carey is certified by both the American Board of Surgery and the American Board of Thoracic Surgery.


Since graduating from the University of Oklahoma School of Medicine in 1942, Allen E. Greer, M.D., has been certified by the American Board of Surgery and the American Board of Thoracic Surgery.

Doctor Greer is Assistant Professor of Surgery at the University of Oklahoma School of Medicine and a member of the American Association for Thoracic Surgery.

aorta appear also to be on the increase.<sup>17, 22, 24, 32, 36, 37</sup> These lesions occur with high frequency in the distal aortic arch just



# AORTIC ANEURYSMS PATHOLOGY



SITE	ETIOLOGY				OVERALL INCIDENCE
	Lues	Arteria Sclerotic	Congenital	Trauma	
ARCH	90%	10%	—	—	80%-20%
DISTAL ARCH	20%	20%	10%	50%	5%
DESCENDING AORTA	70%	30%	—	—	5%
UPPER ABDOMINAL AORTA	90%	10%	—	—	2-5%
ABDOMINAL AORTA	5%	95%	—	—	10%-90%

Fig. 1. Distribution of aneurysms of the aorta and incidence of the etiologic factors.

beyond the ligamentum arteriosum and are the result of rapid deceleration injuries of the type sustained chiefly in automobile accidents.

Figure 1 shows the changing pattern of aneurysms of the aorta. At present, approximately half occur in the abdominal aorta and at least 95% of these are arteriosclerotic in origin. Of the thoracic aneurysms, probably 10% are traumatic or congenital and 10% are arteriosclerotic. It is probable that this pattern will also change over the course of the next several decades.

## Prognosis

A critical examination of any disease when left untreated is necessary to evaluate the efficacy of any suggested form of new treatment. Figure 2 demonstrates the natural course of abdominal aneurysms. Compared to life expectancy of the normal population at the age of 65 (87.9% alive in three years and 79% in five years) the average data obtained from seven authors<sup>3, 5, 20, 23, 28, 34, 39</sup> indicated that 44.9% of individuals with abdominal

aneurysms will be alive in one year, 22.4% at the end of three years, and 10.4% at the end of five years. While all of these individuals did not die of aneurysmal rupture, a significant proportion did. It is also recognized that individuals with aneurysms in excess of 7 cm. in diameter or those having significant symptoms as a result of their aneurysms have a much poorer prognosis.<sup>12, 23</sup> However, some individuals with abdominal aortic aneurysms are asymptomatic until the time of fatal rupture, so that size and symptoms are not entirely reliable in the estimation of prognosis. In brief, a patient with an aortic aneurysm will probably die of rupture of his aneurysm unless he has other severe systemic or cardiovascular-renal disease which would greatly reduce his normal life expectancy.

## Diagnosis

The diagnosis of aneurysms in the great majority of cases is not difficult. Aneurysms located in the thoracic aorta chiefly express themselves by pressure upon the major adjoining viscera such as the esophagus, tra-

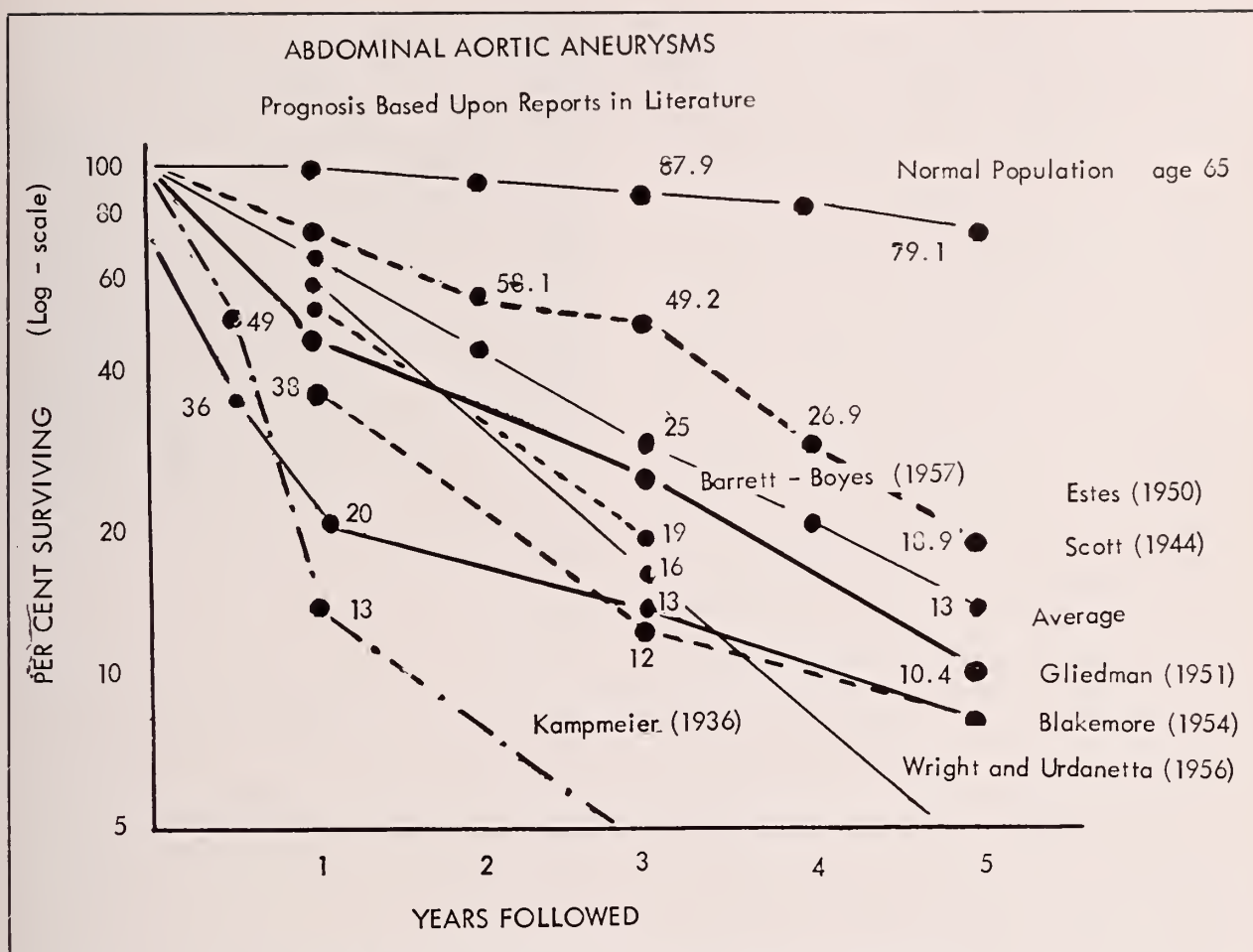


Fig. 2. Natural course of untreated abdominal aneurysms.

chea, major bronchi or bony structures within the thorax. Suitable x-ray studies including roentgenograms taken in various positions, fluoroscopy and angiocardio-graphy are helpful to identify and localize the lesion.

In the abdominal aorta, aneurysms may be entirely asymptomatic and noted by the physician during the course of a routine examination. When symptomatic, pain and a mass are usually recorded. Pain may be located in the abdomen, back, flank or extremities and has no characteristic pattern. Rupture into the duodenum or the inferior vena cavae, or more usually, into the retroperitoneal space is the rapid termination of the disease. In the presence of an abdominal aneurysm, fever, leukocytosis and anemia should immediately suggest the possibility that the aneurysm is leaking.<sup>30</sup> Supine and lateral radiographs of the abdomen usually demonstrate its calcified outline and are

helpful but not pathognomonic. Aortograms are not necessary except in unusual occasions to exclude other abdominal masses.

#### Treatment

It is now commonly agreed that the treatment of aortic aneurysms consists of excision of the diseased segment with replacement by either human or prosthetic graft.<sup>1, 2, 6, 7, 8, 15, 16, 18, 19, 21, 25, 27, 33, 38</sup> Whether such a procedure may be successfully carried out depends upon a reasonable selection of patients. In the patient with a recent coronary occlusion or in patients with severe renal disease, it would be unwise to suggest operation. It is well known, however, that patients with healed infarcts tolerate major operation well. It is generally conceded that any patient who is in reasonably good physical condition and who has an aortic aneurysm should have excision and graft replacement.

There are definite problems involved in treatment of aneurysms of the aorta depending upon their location. For aneurysms within the aortic arch, the technical problems of replacement and the operative mortality, are still appreciable. Best results have been achieved in saccular aneurysms in which lateral aortorrhaphy has been performed. For fusiform aneurysms of the ascending thoracic aorta some type of pump oxygenator by-pass must be employed during the excision and replacement by the graft.<sup>16</sup> For aneurysms of the transverse aortic arch, temporary-permanent by-pass shunts have been successfully employed particularly by DeBakey and Cooley.<sup>16</sup> For aneurysms of the distal aortic arch, two methods in general have been employed in the past. The first of these has been the use of hypothermia with cooling to 28 to 32° centigrade to prolong the safe time of cross-clamping of the aorta during excision of the aneurysm and its graft replacement. The second consists of a temporary by-pass between the aorta or left atrium above to the femoral artery below.<sup>22, 41</sup> Pump perfusion of the distal aorta allows satisfactory renal blood flow and appears to be most helpful in lowering aortic pressure proximal to occluding clamps. Aneurysms of the lower thoracic aorta and of the upper abdominal aorta will probably best be handled by by-pass shunts alone.<sup>15</sup>

For aneurysms of the abdominal aorta below the renal arteries, it is not necessary to use adjuvants during excision and replacement of the aneurysms. Patients are able to tolerate cross clamping for up to two to three hours at this level without untoward effects to either pelvic viscera or lower extremities. Most authors suggest regional heparinization by way of the iliac vessels during this period of cross clamping to prevent thrombosis.

#### Illustrative Cases

The following cases illustrate the problems and treatment in aneurysms of the aorta.

##### Case 1:

C. E., a twenty-seven year old man was involved in an automobile accident on Oc-



Fig. 3. A Tapp-Edwards crimped nylon graft in place following resection of an aneurysm of the distal aortic arch.

tober 21, 1950. He sustained a ruptured spleen, which necessitated its removal, and a hemothorax requiring closed drainage. He was hospitalized for three months. He was then asymptomatic until June, 1956, when he began to complain of intermittent left chest pain. Conventional radiographs of the chest revealed a mass in the distal aortic arch measuring 6.5 by 5.3 by 4 cm. in size confirmed as an aneurysm by thoracic aortograms done on June 27, 1956.

On July 11, 1956, the aneurysm of the distal aortic arch was resected under hypothermia (32 to 30 degrees centigrade) with replacement by a Tapp-Edwards crimped nylon graft (Figure 3). Total time of aortic occlusion was 60 minutes. Postoperatively, the patient made an uneventful convalescence except for mild myelopathy, secondary to aortic occlusion, characterized by weakness of lower extremities, bilateral knee and ankle clonus and hyperactive deep tendon reflexes. The patient is able to walk unassisted and remains well to date.

##### Case 2:

M.M.S., a 23 year old woman was admitted to the hospital because of a productive cough, hemoptysis and left chest pain. A diagnosis of coarctation of the aorta with associated aneurysm and bronchiectasis of left lower lobe was eventually established



although the blood pressure was only 126/60 in the upper extremities and unobtainable in the lower extremities. Over the course of the next several years she noted progressive exertional dyspnea and substernal chest pain. She was admitted to the hospital in July, 1955 for operation.

On July 15, 1955, the coarctation and the aneurysm just distal to it, were excised, continuity of the aorta being restored by inserting a four centimeter reconstituted lyophilized human aortic homograft. The patient was dismissed from the hospital in two weeks after an uneventful convalescence. She expired two and a half months following operation. Autopsy revealed extensive necrotizing pneumonia of the entire left lung, but the aorta and graft were intact and lined with a smooth layer of endothelium. The bronchiectasis of the left lower lobe undoubtedly contributed to the eventually fatal pneumonitis.

#### Case 3:

R.H., a 53 year old man, had lower abdominal discomfort for some years, and was found by his local physician to have an ab-

dominal aneurysm in the spring of 1958. Physical examination revealed a pulsating mass to the right of the mid line just below the umbilicus consistent with an abdominal aortic aneurysm.

On March 2, 1958, resection of the abdominal aortic aneurysm was performed with replacement by a bifurcation Tapp-Edwards nylon graft (Figure 4). The patient made an uneventful convalescence and remains well to date.

#### Summary

Within the past decade aortic aneurysms have become of considerable surgical as well as clinical interest. A change in the age distribution and the etiologic agents causative of these aneurysms has been noted. There are an increasing number of arteriosclerotic aneurysms involving the abdominal aorta. It is also likely that post-traumatic aneurysms of the distal aortic arch are also on the increase. Aneurysms of the aortic arch itself, numerically greater, are now decreasing in frequency.

A study of the prognosis of aortic aneurysms indicates a greatly reduced life expectancy when compared to other individuals in the same age group. The chief complication from aortic aneurysm is rupture; over half of individuals with aortic aneurysm will be dead within three years and only 10% will be alive at the end of five years.

The diagnosis of aortic aneurysms is usually not difficult and in the thoracic aorta the symptoms and signs are largely due to pressure upon adjoining viscera. Within the abdomen, pain and a pulsatile mass are the chief symptoms and findings. Aortography is usually not necessary for the diagnosis.

The treatment of these lesions consists of excision of the aneurysm with replacement by homograft or by prosthetic graft. The technical problem of replacement of an aneurysm of the proximal and transverse thoracic arch is still appreciable. For aneurysms of the distal arch, the lower thoracic and the abdominal aorta surgical replacement is technically less troublesome.

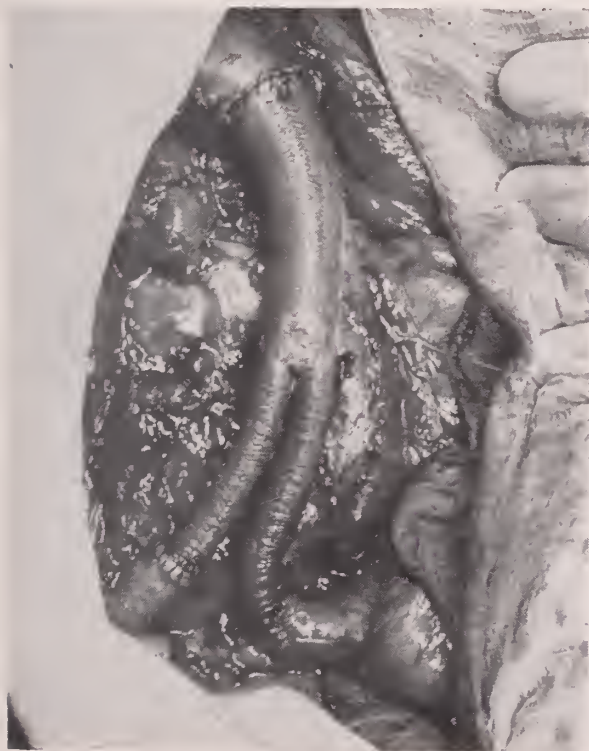


Fig. 4. Bifurcation Tapp-Edwards nylon graft used following resection of abdominal aortic aneurysm.

Three cases illustrating aneurysms of the aorta have been presented, two of these occupying the distal aortic arch and one the abdominal aorta.

#### BIBLIOGRAPHY

1. Bahnson, H. T.: Surgical Treatment of Abdominal Arteriosclerotic Aneurysms. Surg. Clin.N.A. August 1956, pgs. 983-993.
2. Barnes, W. H., Ellis, F. H. Jr., Kirklin, J. W., Edwards, J. E.: Experiences with 165 Aortic Homografts. S.G.O. 106: 49-55, 1958.
3. Barrat-Boyes, B. G.: Symptomatology and Prognosis of Abdominal Aortic Aneurysm. Lancet, Lon. 273: (6998), 716-720, 1957 (Oct.).
4. Blakemore, A. H.: The Clinical Behavior of Arteriosclerotic Aneurysm of Abdominal Aorta: A Rational Surgical Therapy. Ann. Surg. 126: 195-207, 1947.
5. Blakemore, A. H. and Voorhees, A. R. Jr.: Aneurysms of Aorta: a Review of 365 Cases. Angiology 5: 209-231, 1954.
6. Blakemore, A. H.: Abandonment of Banding and Wiring for Aneurysm. Surgery 41: 861-862, 1957.
7. Bosher, L. H. Jr., and Decker, A. M. Jr.: Experiences in Vascular Grafting for Aortic and Arterial Aneurysms. Ann Surg. 145: 943-958, 1957.
8. Boyd, D. P., and Bartels, C. C.: Surgical Treatment of Aneurysms of the Abdominal Aorta. Post. Grad. Med. 21: 477-484, 1957.
9. Brindley, P., and Stembridge, V. A.: Aneurysms of the Aorta. A Clinicopathologic Study of 369 Necropsy Cases. Am. J. Path. 32: 67-82, 1956.
10. Chamberlain, J. M., Klopstock, R., Parnassa, P., Grant, A. R., and Cincotti, J. J.: The Use of Shunts in Surgery of the Thoracic Aorta. J. Thor. Surg. 31: 251-267, 1956.
11. Cooley, D. A., and De Bakey, M. E.: Ruptured Aneurysms of Abdominal Aorta. Post Grad. Med. 16: 334-342, 1954.
12. Crane, C.: Arteriosclerotic Aneurysm of the Abdominal Aorta: Some Pathological and Clinical Correlations. N.E.J.M. 253: 954-958, 1955.
13. Cranley, J. J., Herrmann, L. G., Preuninger, R. M.: Natural History of Aneurysms of the Aorta. Arch. Surg. 69: 185-197, 1954.
14. DeBakey, M. E.: and Cooley, D. A.: Surgical Considerations of Acquired Diseases of the Aorta. Ann. Surg. 139: 763-777, 1954.
15. DeBakey, M. E., Cooley, D. A., and Creech, O. Jr.: Aneurysm of the Aorta Treated by Resection. Analysis of Three Hundred Thirteen Cases. J.A.M.A. 163: 1439-1443, 1957.
16. DeBakey, M. E., Cooley, D. A., Crawford, E. S. and Morris, G. C. Jr.: Aneurysm of the Thoracic Aorta: Analysis of 179 Patients Treated by Resection. J. Thor. Surg. 36: 393-420, 1958.
17. Eiseman, B., and Rainer, W. G.: Clinical Management of Posttraumatic Rupture of the Thoracic Aorta. J. Thor. Surg. 35: 347-359, 1958.
18. Ellis, F. H. Jr., Kirklin, J. W., and Bruwer, A. J.: Surgical Experiences in the Treatment of Aneurysms of the Thoracic Aorta. S.G.O. 106: 179-192, 1958.
19. Ellis, F. H. Jr., Kirklin, J. W. and Bernatz, P. E.: Aneurysms of the Abdominal Aorta. Surg. Clin. N.A. August 1957, pgs. 1047-1057.
20. Estes, J. E. Jr.: Abdominal Aortic Aneurysm: A Study of One Hundred and Two Cases. Circulation 2: 258-264, 1950.
21. Foster, J. H., Lance, E. M. and Scott, H. W. Jr.: Experience with Ethylene Oxide Treated Freeze-Dry Arterial Homografts in 110 Consecutive Patients. Ann. Surg. 148: 230-238, 1958.
22. Gerbode, F., Rainbridge, M., and Osborne, J. J., Hood, M. and French, S.: Traumatic Thoracic Aneurysms: Treatment by Resection and Grafting with the use of an Extracorporeal By-Pass. Surgery 42: 975-985, 1957.
23. Gliedman, M. L., Ayers, W. B., and Vestal, B.: Aneurysms of the Abdominal Aorta and its Branches. A Study of Untreated Patients. Ann. Surg. 146: 207-214, 1957.
24. Goyette, E. M., Blake, H. A., Forsee, J. H., and Swan, H.: Traumatic Aortic Aneurysms. Circulation 10: 824-828, 1954.
25. Gwathmey, O., Pierpont, J. C., Blades, B.: Clinical Experiences with the Surgical Treatment of Acquired Aortic Vascular Disease. S.G.O. 107: 205-213, 1958.
26. Gross, R. E., Hurwitt, E. S., Bill, A. H. Jr., and Pierce, E. C. II: Preliminary Observations on the Use of Human Arterial Grafts in the Treatment of Certain Cardiovascular Defects. N.E.J.M. 239: 578-579, 1948.
27. Hardin, C. D.: Orlon and Nylon Prostheses for Abdominal Aneurysms and a Five Year Observation on Experimental Aortic Homografts. Ann. Surg. 146: 78-85, 1957.
28. Kampnieler, R. H.: Aneurysms of the Abdominal Aorta. A Study of 73 Cases. Am. J. Med. Sc. 192: 97-109, 1936.
29. Maniglia, R., and Gregory, J. E.: Increasing Incidence of Arteriosclerotic Aortic Aneurysms. Analysis of Six Thousand Autopsies. A.M.A. Arch. Path. 54: 298-305, 1952.
30. Morgan, W. L. Jr.: Important Diagnostic Signs of a Leaking Abdominal Aortic Aneurysm. A.M.A. Arch. Int. Med. 99: 134-138, 1957.
31. Osler, W.: Aneurysms of Abdominal Aorta. Lancet 2: 1089, 1905.
32. Rice, W. G., and Wittstruck, K. P.: Acute Hypertension and Delayed Traumatic Rupture of Aorta. J.A.M.A. 147: 915-917, 1951.
33. Roberts, B., Danielson, G., and Blakemore, W. S.: Aortic Aneurysm. Report of 101 Cases. Circulation 15: 483-491, 1957.
34. Scott, V.: Abdominal Aneurysms: A Report of 96 Cases. A. J. Syph. 28: 682, 1944.
35. Sellors, T. H.: Coarctation of the Aorta Associated with Aneurysm. Brit. J. Surg. 43: 365-371, 1956.
36. Steinberg, I.: Chronic Traumatic Aneurysm of the Thoracic Aorta. Report of Five Cases, with a Plea for Conservative Management. N.E.J.M. 257: 913-918, 1957.
37. Strassman, G.: Traumatic Rupture of the Aorta. Am. Heart J. 508-515, 1947.
38. Wheelock, J., and Shaw, R. S.: Aneurysms of the Abdominal Aorta and Iliac Arteries. N.E.J.M. 255: 72-76, 1956.
39. Wright, I. S., Urdaneta, A. E., and Wright, B.: Re-opening the Case of the Abdominal Aortic Aneurysm. Circulation 13: 754-768, 1956.
40. Zech, R. K., and Merendino, K. A.: A Study of One Hundred and Sixteen Aneurysms of the Aorta and Iliac Arteries with Remarks Concerning Surgical Attitudes. Am. Surg. 21: 1150-1161, 1954.
41. Greer, A., Zuhdi, N. and Carey, J.: Extracorporeal By-Pass During Resection of Aneurysm of Distal Aortic Arch. To be published.

430 N.W. 12th, Oklahoma City, Oklahoma

ACADEMY, *n.* (from academe). A modern school where football is taught.

AGE, *n.* That period of life in which we compound for the vices that we still cherish by reviling those that we have no longer the enterprise to commit.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.





## Fibrinolytic Activity in the Body

JOE BILLS REYNOLDS\*

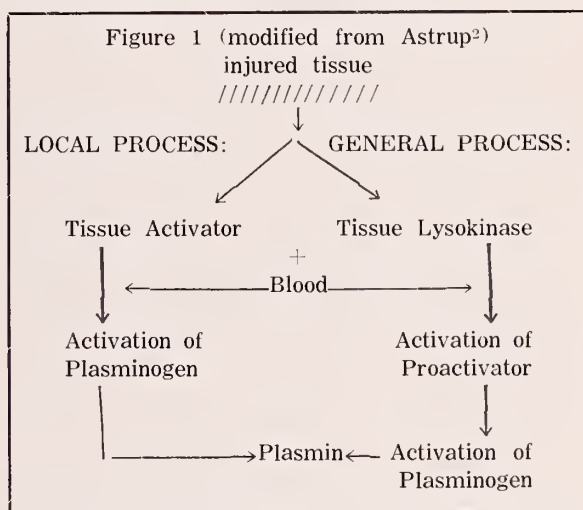
**DURING RECENT YEARS**, there has been an increased interest in the fibrinolytic process. This is the process by which the living organism dissolves blood clots and disposes of fibrin deposits. The present indication is that the fibrinolytic system is one of the fundamental mechanisms in physiology, and that physiologic and chemical research may elaborate the full nature of the enzymes associated with this process.

Research on fibrinolysis was done as early as 1936, but nothing concrete was obtained until about 1948. One of the first papers pertaining to this process was a short review on the mechanism and significance of fibrinolysis by Macfarlane and Biggs in 1948. Research since then has shown this process to be much more complicated in the organism than was proposed at that time.

Of great importance among the clinical findings is that the hemorrhagic conditions observed in obstetrical cases and in carcinoma of the prostate are caused by circulating fibrinolytic agents. The effect of increased fibrinolytic activity in blood due to immune reactions and shock, seems to be under the control of endocrine factors.<sup>4</sup>

Two mechanisms exist in the organism for producing fibrinolytic activity. One is a local process produced by the release of an *activator* from injured tissue. The second activation mechanism changes a *pro-activator* in blood to an *activator*. This change is of a general character as it is rapidly carried by the blood stream to all

organs of the body. These concepts are presented in the following schema.



The purpose of the local process is to maintain tissue repair and dissolve local fibrin deposits, such as small localized thrombi. Fibrin deposits and small thrombi are formed and dissolved daily as a normal occurrence in the organism due to minor injuries produced during the stress of daily life.<sup>2</sup> It is therefore an important physiological mechanism.

Today, medical research is still in an expanding phase and no final concept of the complete fibrinolytic process can be presented. It is the intention of this paper to present in a concise form the present status of research already completed.

### History

Blood contains an inactive precursor of a proteolytic enzyme which is converted into active enzyme by different substances in

\*Joe Bills Reynolds is a student at the University of Oklahoma School of Medicine.



vitro and under various conditions in vivo. Over the years, from previous work on this enzyme system, different terms have been applied to the components involved. Such terms as plasma trypsin (Schmitz 1936), and serum tryptase (Ferguson 1943) are unsuitable because they imply a relationship between the enzyme in blood and trypsin. The terms *fibrinolysin* for the active enzyme, *profibrinolysin* for the precursor, and *antifibrinolysin* for the inhibitor in the blood, were proposed by Ryder in 1947. This terminology, although still in use, appears undesirable since the enzyme is not specific for fibrin, but is a general proteolytic enzyme capable of splitting a certain type of peptide linkage.<sup>14</sup>

Fibrinolysis was known before 1933 to develop in blood by a spontaneous process, but other than the ultimate formation of a proteolytic enzyme, the nature of this reaction was unknown. In 1933, Tillett and Garner observed that a fibrinolytic agent was produced by strains of hemolytic streptococci and these authors considered it to be a fibrinolysin. In 1941, Milstone showed that the fibrinolytic effect of the streptococcal substance depended upon a factor in human blood serum which he called a "lytic factor." Later investigations showed that the "lytic factor" was an enzyme precursor which could be changed into a fibrin-splitting proteolytic enzyme by chloroform treatment or the addition of the streptococcal agent.<sup>7</sup>

As a result of these findings a change in terminology was proposed by Astrup and Mullertz, the enzyme proper being called *plasmin* and its precursor, *plasminogen*. The plasmin inhibitor in blood is termed *antiplasmin* and the streptococcal factor, previously called fibrinolysin, is now termed *streptokinase*, since it is not a fibrinolytic enzyme proper, but an agent which effects the transformation of the precursor into active enzyme.<sup>2</sup>

#### Fibrinolytic System

The foregoing discoveries were of great importance, but still they failed to explain the stepwise development of fibrinolytic activity in the organism. The physiologic basis of this process had to be sought in re-

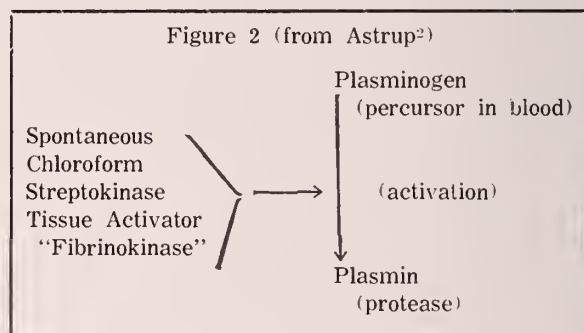
actions in vivo produced by compounds originating in the body.

#### Activation Scheme of 1947

From an approach such as this, Astrup in 1947, assumed that the physiologic activation of a fibrinolytic enzyme in the organism resulted from an interaction between an enzyme precursor in blood and an activating agent released from the tissues. He and his associates demonstrated this activator and called it fibrinokinase which was later changed to the term, "tissue activator" of plasminogen.<sup>2</sup>

Another fact also known in 1947 was that the fibrinolytic process was inhibited in blood plasma by agents, of which antiplasmin, present in plasma in large amounts, was thought to be related to the known anti-tryptic effect of serum.

The following activation scheme was the one proposed by Astrup in 1947 illustrating the few facts known at that time.



#### Activation Scheme of 1954

Through later experimental results, Astrup was able to propose another activation scheme in 1954, which although still incomplete, gives an explanation of most of the present observations of the fibrinolytic system in vitro.<sup>2</sup> This scheme is now generally accepted, but it should be kept in mind that the existence of a proactivator in human plasma was postulated merely to explain why the plasminogens of other species are not activated by streptokinase (SK) alone, but require the presence of human plasma. Proactivator has not as yet been isolated, purified, or even demonstrated to be a part of this activity, except by indirect inference.<sup>10</sup>

This scheme differs from the one of 1947 in that the transformation of an enzyme

precursor (*plasminogen*) into the active protease (*plasmin*) can be performed in different ways. The mechanism of spontaneous activation is unknown. Chloroform probably has a denaturing effect thereby producing activation. Trypsin shows enzymatic proteolytic activity in its formation of plasmin and shows characteristics of a plasminogenase. The activator of plasminogen found in tissues may react by forming a stoichiometric complex.<sup>13</sup> Urine contains an activator of plasminogen, urokinase, which acts by enzymatic reaction following kinetics of a first order reaction. In blood, human milk, tears, and other body fluids, enzymatically acting activators of plasminogen are also found. The nature of these activators formed in human blood by the action of streptokinase as an activator precursor has been proven.<sup>9</sup>

In some cases, an agent activating the plasminogen proactivator has been found in blood and human tissues. These compounds are classified as lysokinases.<sup>2</sup>

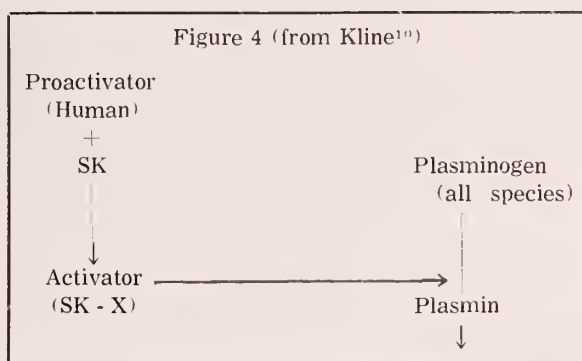
The mechanism of inhibition has also been found to be highly complicated. The plasma contains two inhibitory components for plasmin and these have been found to be different serum factors, but have not been shown to react specifically on plasmin or on other enzymes. These factors are "alpha-1-antiplasmin" and "alpha-2-antiplasmin."<sup>14</sup>

#### Current Activation Scheme

Kline and Fishman expressed the preceding fibrinolytic system of Astrup (figure 3) as follows:

#### Physiologic Role of Fibrinolysis

The processes of *blood coagulation* and



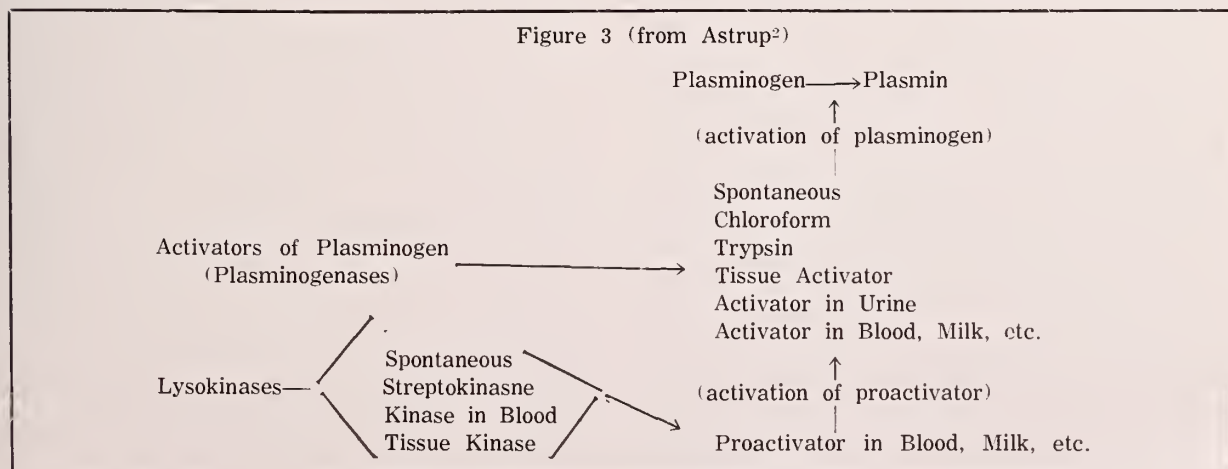
*clot lysis* are equally important as defense mechanisms for the human body. The complexity of these processes is due to the fact that the knowledge of the mechanisms is still incomplete, and that most of the substances that play a part have not yet been obtained as pure chemical entities.

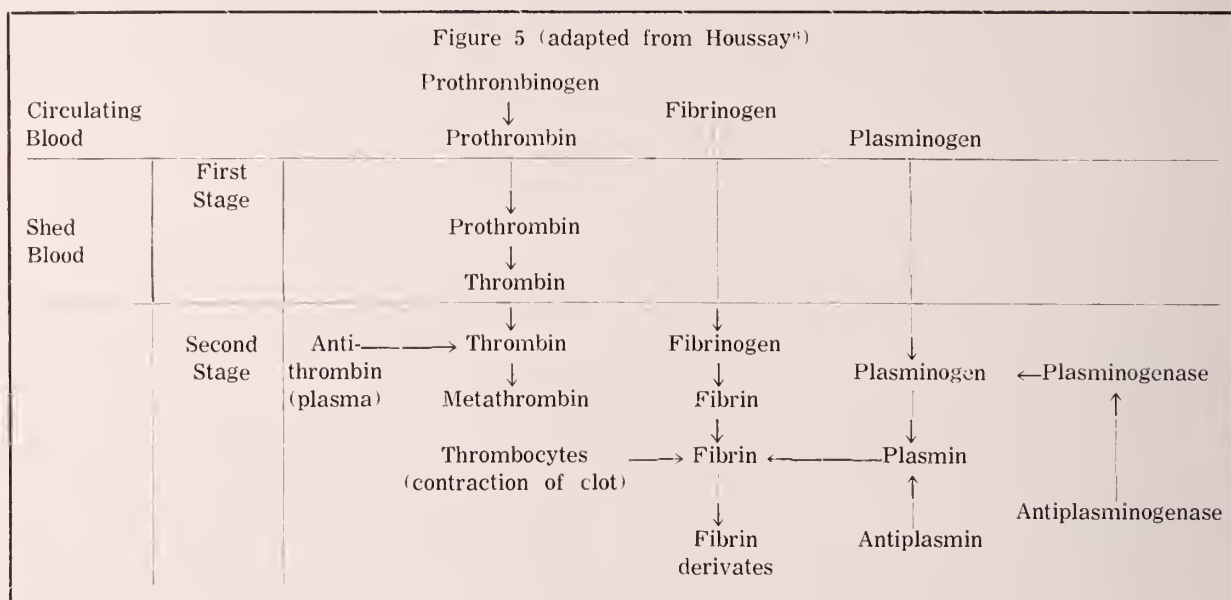
Until recently, the physiologic role of fibrinolysis was considered unimportant in relation to coagulation, but today, with the appearance of new drugs, more advanced medical facilities, and a better understanding of human physiology, there is also a greater need for an efficient and effective fibrinolytic enzyme for therapeutic use. As progress is made in pathologic cases, which involve delayed circulation due to clot formations, an enzyme to aid in restoration of normal circulation would be of great importance clinically.

Clot formation and destruction are very closely related; therefore, the following figure is presented to illustrate these facts.

In pathologic cases, where fibrin deposits are so large that they persist for a considerable time, thus interfering with blood circulation, increasing the fibrinolytic activity

Figure 3 (from Astrup<sup>2</sup>)





in the organism will be of therapeutic use. The most direct approach is by introducing a potent fibrinolytic enzyme into the blood stream. The most promising enzyme at the present is purified plasmin.<sup>2</sup> The use of plasmin in the therapy of thrombosis awaits the preparation of highly purified human preparations in large amounts.<sup>5</sup> Experiments seem to point to the observation that the older the clot, the less effect human plasmin has on it. Increased clot density may thus be a resistance factor.<sup>20</sup>

Blood clotting is often impaired in individuals with severe liver damage. Fibrinolytic activity is also observed more frequently in patients undergoing hepatic lobectomy than in patients undergoing other operations. This activity may be due either to increase in plasminogen or its activator or decrease in concentration of an inhibitor.<sup>23</sup> Regardless of the cause, the liver seems to show indications of fibrinolytic control.

The presence of an activator in urine serves a definite physiologic function. The occlusion of the urinary passage with clotted fibrin could be harmful to the organism; therefore, this activator serves the purpose of making possible the rapid resolution of clotted blood in the urinary system.<sup>2</sup> Experiments on other fluids of the body such as human milk, lacrimal fluid, saliva, and seminal fluid indicate that these also contain fibrinolytic systems which assist in clot removal.<sup>9</sup> Amniotic fluid is somewhat

different in that it has no fibrinolytic activity, but does contain large amounts of a proactivator of plasminogen.<sup>2</sup>

In shock, the indications point to all available proactivator in the blood being transformed into activator by a specific agent, the nature of which is not known.<sup>4</sup> This agent or a similar labile component is present in small amounts in normal human blood.<sup>2</sup>

The use of the fibrinolytic enzymes in medicine is at the present time very limited. As was stated earlier, these enzymes have either bad side effects or they are limited in production, as is plasmin. The ultimate desired goal is the use of a fibrinolytic enzyme for the dissolution of intravascular clots, which are detrimental, at that particular time, to a patient's health.

The three main areas which have received the greatest attention are: pancreatic trypsin, streptokinase, and plasmin. Of the three enzymes, trypsin is too generally proteolytic (for systemic use), and streptokinase must be further purified to eliminate side effects. Plasmin seems to possess the requirements of the ideal clot dissolving agent, but must receive more clinical trial to be proven.<sup>7</sup>

#### Plasminogen and Plasmin

From various sources there is evidence that the proteolytic, fibrinolytic, and fibrinogenolytic effects produced by different blood preparations are ultimately caused by a single enzyme, plasmin. To obtain correct



information about the properties of plasminogen and plasmin, it is necessary to estimate the activity of the preparation using plasminogen-free substrates. Plasminogen preparations have been obtained by successive isoelectric precipitation, ammonium sulphate precipitation, and by a combination of both procedures. Human plasmin is generally prepared from the plasminogen preparations by activation with streptokinase. Small amounts of streptokinase produce a complete activation of plasminogen due to the large quantities of proactivator in all human serum.<sup>14</sup> In addition to plasmin, active preparations also contain streptokinase, activator, and often inhibitors. Purification by heating at 100°C. and pH 1.8 for 30 minutes was found to destroy streptokinase, activator, and almost all inhibitor with moderate loss of plasmin.<sup>1</sup>

Plasmin is a proteolytic enzyme which is thermostable and resistant to acid.<sup>11</sup> It is estimated to have a molecular weight of 108,000 and an isoelectric point of 6.2.<sup>19</sup>

Plasmin destroys clotting components of blood, acellin and prothrombin, while thrombin is unaffected. Plasmin and trypsin are distinctly different enzymes and enterokinase does not activate plasminogen.<sup>10</sup>

The pH of optimum activity of plasmin has been established to be in the range 7.5-8.3. Statements about the stability of plasmin have been contradictory.<sup>14</sup> Christensen found a maximum of stability at a pH of 7.0-7.4 with a rapid loss above and below these values in the pH range 3.5-11. On the other hand, Mullertz found a high stability at acid reactions.<sup>14</sup> Sherry also noted a high stability of human plasmin at pH 2.0.<sup>17</sup>

#### **Activation of Plasminogen**

##### **Activation of Plasminogen by Fractionation and Chloroform**

Proteolytic and fibrinolytic activation have been produced by treatment of serum or globulin solutions with ether, ethanol, thymol, acetone, and other alcohols. However, reproducible results were not always obtainable.<sup>14</sup>

Chloroform is the most often used organic solvent as an activating agent in the production of protease effects in blood. The advantage of using chloroform is that no for-

eign protein is added. Its disadvantage is that results with it are not always reproducible. The mechanism of activation is still unknown, but it has been attributed to the destruction of an inhibitory compound followed by a spontaneous activation process of the autocatalytic type.<sup>2</sup>

##### **Activation of Plasminogen by Protease**

The property of trypsin to activate plasminogen has been demonstrated by various workers independently. The rate of activation was increased by increasing the concentration of trypsin and the final amount of plasmin formed was proportionate to the concentration of plasminogen, but within certain limits independent of the trypsin concentration. It has been assumed that trypsin probably produces plasmin by proteolytic cleavage of the plasminogen molecule.

Other proteases and their effects on plasminogen have also been studied, but all failed to activate human plasminogen.<sup>14</sup>

##### **Activation of Plasminogen by Tissue**

Astrup has shown that the lytic effect of cells on plasma clots is caused by the transformation of plasminogen in the fibrin substrate to plasmin by an activator associated with the tissue fragments. The tissue activator is strongly attached to structural proteins, especially in the microsome fraction.<sup>2</sup>

The total amount of enzyme obtainable after a complete reaction was shown to depend on the concentration of plasminogen as well as the concentration of the activator which reaction apparently proceeds to an equilibrium. Complete conversion of plasminogen to plasmin by tissue activator probably was not obtained. Astrup has verified the assumption that the activator removes reversibly a blocking substance from plasminogen converting it into plasmin. He has also suggested that the enzymic effect of trypsin on plasminogen suggests that the other activators of plasminogen act through an enzyme reaction and that discrepancies may be due to inhibitory agents.<sup>11</sup>

##### **Activation of Plasminogen by Bacterial Filtrates**

A substance is present in the culture filtrate from certain B-hemolytic streptococci which effects the lysis of clotted human plasmin and fibrinogen. Milstone found

that clots of highly purified human fibrinogen were not lysed by this factor, and that a "lytic factor" in human globulin in addition to the streptococcal factor was necessary for the production of fibrinolysis. Confirmative evidence presented by Remmart and Cohen seems to conclude that the transformation of plasminogen to plasmin was catalyzed by streptokinase which combined stoichiometrically with plasminogen.

Certain staphylococci produce a substance, staphylokinase, which effects the formation of a fibrinolytic and proteolytic enzyme in serum. Lysis of plasma clots has also been induced by cultures of gas gangrene anaerobes, the effect of which is probably due to proteases released by these organisms. Only streptococci and staphylococci were found to produce kinase substances.<sup>14</sup>

#### **Fibrinolytic Activity of Urine**

Urokinase is the first physiological plasminogen activator which has been isolated in highly purified form. Experiments reported confirm the fact that urokinase transforms plasminogen into plasmin by enzymic reaction. The enzymic nature of plasminogen activator formed in human blood by action of streptokinase, an activator precursor, has been proven.<sup>3</sup> Fibrinolytic systems, resembling those in blood, are found in most body secretions such as tears, saliva, and milk. The streptokinase-sensitive precursor is dominant in these cases, and only small amounts of free activator are found. In urine the reverse is true; the free activator is found in large amounts. This gives rise to the question of the identity of urokinase with the blood activator and possible transformation of the precursor in the kidneys. There is some experimental evidence that urokinase is different from acid labile blood activator and that its plasminogen activation is inhibited by certain esters.<sup>9</sup>

#### **Spontaneous Fibrinolytic Activity**

Fibrinolytic activity occurs spontaneously in blood and other body fluids. Urine normally contains a high activity, caused by an activator of plasminogen. Blood normally contains no (or very slight) activity except under certain conditions. In cases of sudden death of normal persons, states of anxiety, after adrenalin injection, and other

conditions related to shock, a considerable activity can be found. Lytic activity may also develop in samples of blood during storage.<sup>2</sup>

Because of the strong fibrinolytic activity of blood in cases of sudden death, particularly when death is due to asphyxia (in which case high fibrinolytic activity is present) such blood has been useful in studies of spontaneous activity. The fibrinolytic activity produced by adrenaline or exercise disappears very rapidly from the blood and therefore interferes with the accuracy of the activator estimation.<sup>2</sup>

Some clarification of the identity of the agent responsible for spontaneous fibrinolytic activity was reached when it was found by means of the heated fibrin plate method that the lytic effect caused by spontaneously active human blood was due to an activator of plasminogen (only small amounts of plasmin being present). The blood activator is a very labile substance similar in this respect to the plasminogen activator found in urine and differing from the more stable tissue activator. Most results from post mortem studies attempting to identify the agents responsible for fibrinolytic activity point to the presence of two different components, an active enzyme, plasmin, and an activator of plasminogen. Recent studies on the streptokinase produced blood activator have shown the effect of this component on plasminogen to be catalytic.<sup>2</sup> The mechanism of spontaneous activation of plasminogen is autocatalytic and involves the release of a peptide moiety.<sup>18</sup> The blood activator is apparently formed by an inactive precursor in blood present in large amounts.

The activity which develops spontaneously during storage is not always an activator, but an enzyme proper.<sup>2</sup>

#### **Inhibitory Agents and Significance of Fibrin**

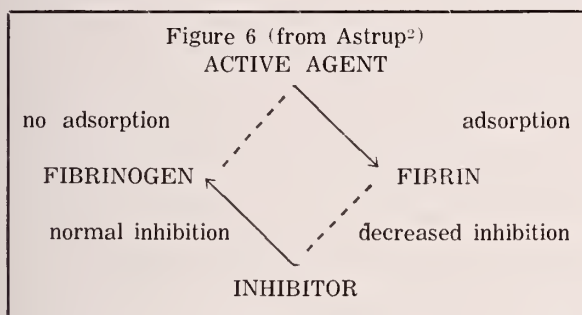
A trypsin inhibitor exists in serum which is heat labile, belongs to the serum albumin group, and is destroyed incompletely by chloroform. It is probably mainly responsible for a large part of the plasmin inhibiting effect of blood, namely that caused by labile antiplasmin.<sup>2</sup> Evidence has been obtained for inhibition of fibrinolysis in whole blood by immune gamma-globulin.<sup>12</sup>



It has also been found that isoelectrically precipitated serum globulin contains stable inhibitory agent. In separation by electrophoresis, it has been shown that the A<sub>2</sub> inhibitor globulin acts as a potent inhibitor of a plasminogen activator, while the A<sub>1</sub> inhibitor showed little activity.<sup>16</sup>

Various publications substantiate the presence of at least three plasmin inhibitors.

Fibrin is also involved in the inhibitory reaction. Fibrinolytic agents are adsorbed on fibrin which decrease the effect of inhibitory agents, thus requiring larger amounts of inhibitors to prevent clot lysis than for preventing the effect on fibrinogen. This explains the fact that fibrinolysis may occur under conditions where fibrinogen is not attacked. These reactions are very important in regulating the fibrinolytic system.<sup>2</sup> The interactions are diagrammed in the following table.



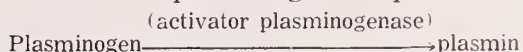
Inhibitory agents (antitryptic agents) are also present in the tissues; the albumin fraction of extracts of various organs shows antiplasmin activity, the highest level being in the liver and spleen. Urine also contains an inhibitory substance.

Heparin has been the subject of controversy. Astrup found it to inhibit fibrinolysis, dependent on proper pH and ionic strength of the fibrin substrate and plasmin sample.<sup>2</sup>

#### The Activator of Plasminogen in Blood Streptokinase Proactivator-Activator System

Investigations performed recently have shown that streptokinase does not react directly with plasminogen, but indirectly through a proactivator-activator system. Furthermore, streptokinase reacts with proactivator in a reversible reaction:<sup>11,15</sup>  
Streptokinase + proactivator  $\rightleftharpoons$  activator + inactive component

Studies have shown that the activator is a proteolytic enzyme which catalyses the conversion of plasminogen to plasmin:<sup>11</sup>



#### Spontaneous Proactivator-Activator System

A proactivator-activator system is probably involved in the spontaneous formation of plasmin in vivo and vitro. Spontaneously lytic human blood has been found to contain a potent activator of plasminogen as have certain tissue extracts.<sup>14</sup>

#### Activator and Proactivator Estimation

Human blood contains large amounts of proactivator and streptokinase-activated preparations contain considerable quantities of an activator of plasminogen in addition to plasmin. Previous observations on the fibrinolytic activity of blood from living and dead human subjects, and of streptokinase-activated human preparations from blood have, for the most part, been concerned with the activator and not with plasmin.<sup>15</sup>

The existence of a proactivator-activator system is of primary significance for the concept of the development of fibrinolysis in blood. The splitting of fibrinogen and fibrin, produced by plasmin and activator, occurs at almost identical rates although in plasma only fibrin, but not fibrinogen, is split. The activator is strongly adsorbed to fibrin. Also in the blood is an anti-activator, the effect of which is markedly reduced in the presence of fibrin. Spontaneously lytic blood contains varying amounts of activator bound by antiactivator, but very little plasmin bound by antiplasmin. These observations indicate that activation of plasminogen takes place on the fibrin surface and the effect of the inhibitor against activator is reduced by its adsorption to fibrin.<sup>14</sup>

#### Stability of Activator and Proactivator

Recent studies of the activator and proactivator have shown that the activator activity may be destroyed at acid and alkaline reactions, but the proactivator is very stable, especially at acid pH. The effect of the activator is increased greatly by di- and tri-carboxylic acids, but strong inhibition is produced by diaminomono-carboxylic acids and lysine ethyl esters.<sup>14</sup>

#### Methods for the Evaluation of Human Fibrinolysis

Increasing attention is being devoted to



pathologic fibrinolytic states and to therapeutic induction of this phenomenon in thromboembolic conditions. Of great prognostic value is the information which reveals the various states of activation which have not yet produced hemorrhage. Various methods have been used to demonstrate the presence of active fibrinolytic enzymes. These methods must fulfill the following requirements to be helpful and useful:<sup>22</sup>

1. The test must be sensitive enough to detect increased tendency to lysis even when there is no lysis of a spontaneously clotted blood during a 24 hour incubation period.
2. The results of the tests should be quickly available.
3. The test should be applicable in the presence of anticoagulants, particularly heparin.

Studies by Kurt von Kaulla and Richard Schultz (1957), have revealed that the combined application of thrombelastography with the test for euglobulin lysis time is superior to any other method of fibrinolysis determination (Table 1).

The euglobulin method of estimating fibrinolysis is based on the fact that the plasma euglobulins contain all of the factors es-

sential for clotting and fibrinolysis, but the greatest part of antifibrinolysis is eliminated during preparation. The clotted fraction of human euglobulin invariably undergoes spontaneous fibrinolysis during incubation. The euglobulin lysis test should be performed immediately after venipuncture, because there is a loss of activity if the blood is stored.<sup>22</sup> It has been found that citrate consistently increases the fibrinolytic activity in isolated euglobulin fraction of human plasma. It is thought that citrate may be active in the transformation of proactivator to activator.<sup>3</sup>

### Mechanism of Fibrinolysis in Blood

At the present time, it is thought that the development of fibrinolytic activity in blood is associated with the state of the vascular system. It is probable that any change causing increased permeability of the vascular endothelium and release of tissue components may cause an increase in the potential clotting tendency, leading in turn to increased potential fibrinolytic activity of the blood. A factor from tissue apparently combines with components in blood to form *plasminogenase* (activator of plasminogen). It is also probable that some plasminogenase is present in blood under normal conditions.

TABLE I (from Von Kaulla<sup>22</sup>)  
SUMMARY OF METHODS USED OR SUGGESTED FOR ESTIMATION OF CLINICALLY OBSERVED FIBRINOLYSIS

Principle	Applicable When Heparin Present	Detects Weak Fibrinolysis	Advantage	Remarks
1. Measurement of lysis time of spontaneously clotted blood	No	No	Simple	Quick results only with strong fibrinolysis
2. Measurement of lysis time of thrombin-clotted plasma	Yes, in low concentration	No	Simple, process easy to observe	More sensitive than #1
3. Measurement of lysis time of diluted thrombin clotted plasma	Yes, in low concentration	Yes	More sensitive than undiluted plasma	Less sensitive than undiluted with patients with induced lysis
4. Thrombelastographic recordings of blood or plasma lysis	No	To some extent	Permanent record of kinetics of lysis	Convenient, but expensive device required
5. Digestion zones on fibrin plates	Yes	No	No clot or fibrinogen required	A period of hours required for results. Fresh fibrin plates must be available at all times
6. Determination of undigested fibrin after 24 hours of incubation	Yes, in low concentration	Yes	Result in mg. of digested fibrin	Slow, requires 24 hours
7. Digestion of synthetic substrates	(?)	(?)	Titration results available in hrs.	Insensitive for spontaneous fibrinolytic human plasma
8. Euglobulin lysis	Yes	Yes	Results available in minutes to a few hours	No special equipment required

In fluid blood, all active substances circulate in a neutralized state, therefore there is no activation of plasminogen. Plasminogenase is bound by a specific inhibitor, anti-plasminogenase, and is strongly adsorbed onto fibrin from the fluid circulating blood. In this way, plasminogenase accumulates on the surface of fibrin deposits, and local, high, concentrations can be reached, although plasminogenase concentration in the blood is very low. The effect of inhibitors against activation and possibly against the effect of plasmin is reduced by the adsorption of activator and plasmin to the fibrin substrate. Dissociation of the plasminogenase-antiplasminogenase compound may occur on the adsorption of plasminogenase onto fibrin. The activation of plasminogen occurs on the fibrin surface and the fibrin is subsequently digested by the plasmin formed in the clot. With the lysis of the fibrin, plasmin and plasminogenase are released into the blood and probably neutralized there by their respective inhibitors. Simultaneously some deterioration of the rather labile components takes place.<sup>14</sup>

The following schemes illustrate equilibria and enzymic reactions in the presence of fibrin.<sup>14</sup>

Plasminogenase is adsorbed from circulating blood onto fibrin:

1. plasminogenase + fibrin  $\rightleftharpoons$  fibrin — plasminogenase and hence:
2. bound plasminogenase  $\rightleftharpoons$  plasminogenase + anti-plasminogenase

On the fibrin surface:

3. plasminogen  $\xrightarrow{\text{plasminogenase}}$  plasmin and:  
plasmin
4. fibrin  $\longrightarrow$  protein fragments

It is probable that fibrin deposits are continuously formed in various places in the organism also under physiological conditions, and that these are continuously and rapidly lysed.

### Conclusion and Summary

From the year 1947, when the first scheme of fibrinolytic activity was proposed until today, great advances in the functional understanding of fibrinolysis have been achieved. Still little is known about the actual mechanisms in the human body which produce this process.

One important fact which must be noted is that the various reactions occurring under normal conditions in blood in the organism can be demonstrated only by inducing abnormal clot formations in the body. This makes it very difficult to obtain a precise knowledge of the state of the different components of the system in fluid blood in the vessels.

*Plasmin* is a fibrinolytic enzyme occurring in body fluids; its precursor is *plasminogen*. Plasmin is of vital importance to the organism because of its ability to dissolve blood clots anywhere in the body. Plasmin is thought to be an ideal blood clot dissolving agent which may be of tremendous therapeutic value in the treatment of thrombosis. Its use is dependent upon further research in order to supply a purified enzyme in sufficient quantities. The best method of measuring fibrinolytic activity in the organism yet devised is the euglobulin method in combination with thrombelastography.

### BIBLIOGRAPHY

1. Ablondi, F. B., and Hagan, J. J.: Comparison of certain properties of human plasminogen and proactivator. *Proc. Soc. Exper. Biol. & Med.* 95: 195, (June) 1957.
2. Astrup, T.: Fibrinolysin in living organisms. *Blood* 11: 781 (Sept.) 1956.
3. Buckell, M.: Effect of citrate on euglobin methods of estimating fibrinolytic activity. *Am. J. Clin. Path.* 11: 403, (Sept.) 1958.
4. Clifton, E. E.: Physiological mechanisms of fibrinolysis. *Acta. Haemat.* 20: 76, (July) 1958.
5. —: The use of plasmin in humans. *Ann. New York Acad. Sc.* 68: 209, (art. 1) 1957.
6. Houssay, B. A.: *Human Physiology*, ed. 2, New York, McGraw-Hill, 1955, p. 66.
7. Hume, M., and Glenn, W.: Dissolving blood clots. *Connecticut M. J.* 21: 118, (Feb.) 1957.
8. —: Plasmin lysis. *Surg. Forum* 7: 35, 1957.
9. Kjeldgaard, N. O.: Mechanism of plasminogen activation. *Biochem. et biophys. acta* 24: 283, (May) 1957.
10. Kline, D. L.: Plasmin the human protease. *Ann. New York Acad. Sc.* 68: 25, (art. 1) 1957.
11. Lewis, G. P.: Formation of plasma kinins by plasmin. *J. Physiol.* 140: 285, (Jan.) 1958.
12. Meyers, W. M.: Antigenic studies on human plasminogen. *Experientia Basel* 14: 280, (Aug.) 1958.
13. Mill, P. J.: Proactivator of plasminogen by lysis. *Biochim. et biophys. acta* 23: 437, (Feb.) 1957.
14. Mullertz, S.: Mechanism of activation and effect of plasmin in blood. *Acta. physiol. scandinav.* (suppl. 130) 38: 1, 1956.
15. —: Activation of plasminogen. *Ann. New York Acad. Sc.* 68: 38, (art. 1) 1957.
16. Norman, P. S.: Studies of plasmin system. *J. Exper. Med.* 108: 639, (Nov.) 1958.
17. Sherry, S.: Proteolytic and fibrinolytic enzymes. *Ann. New York Acad. Sc.* 68: 52, (Aug.) 1957.
18. —: Activation of human plasminogen. *Chem. Abstr.* 53: 483i, (Jan.) 1959.
19. Shulman, S., Alkjaersig, N., and Sherry, S.: Physicochemical studies on human plasmin and plasminogen. *J. Biochem.* 233: 91, (July) 1958.
20. —: Back, N., Ambrus, J. L., and Simpson, C. L.: Streptokinase-activated plasmin (fibrinolysin) on clots in various stages of organization. *Am. J. Clin. Invest.* 37: 864, (June) 1958.
21. Szuchet, S.: Fibrinogen proteolysis by plasmin. *Proc. Soc. Exper. Biol. & Med.* 94: 267, (Feb.) 1957.
22. Von Kaulla, K., and Schultz, R.: Methods for the evaluation of human fibrinolysis. *J. Clin. Path.* 29: 104, (Feb.) 1958.
23. Zucker, M. B.: The effect of hepatic lobectomy on some blood clotting factors and on fibrinolysis. *Ann. Surg.* 146: 772, (Nov.) 1957.

800 N.E. 13th, Oklahoma City, Oklahoma



## Cancer of the Prostate

*Proceedings of a weekly conference sponsored by the Medical and Surgical Services, VA Hospital and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine and edited by Rene Menguy, M.D., Ph.D., and Mrs. Esther Compton.*

**DOCTOR MALMBORG:** The patient, a 64-year-old negro laborer, was admitted to the Urology Service. He complained of increased urgency and frequency of urination during the past five months. These symptoms were associated with generalized weakness and had become progressively worse. Recently dependent edema had appeared. Two weeks prior to admission he developed recurrent and severe epistaxis. There was a 15 pound weight loss. The remainder of the history was not relevant. There was no history of back pain, easy bruising, or evidences of other bleeding tendencies.

On physical examination the patient appeared wasted, chronically ill and in moderate distress. During the interview he had a profuse epistaxis. A slight irregularity of the sternum was noticed. Both lung fields were normal. A soft blowing murmur of moderate intensity was heard at the apex of the heart. The liver edge was palpable 5 cms. below the right costal margin. On rectal examination the prostate was found to be three to four times larger than normal size. It was tender to palpation and its consistency was extremely hard and nodular. The motion of both knees was limited. These joints were also painful to palpation and similar tenderness was elicited over all the long bones. Generalized muscle weakness was apparent.

The following laboratory studies were considered pertinent. The hemoglobin ranged from 6.3 to 8.7 gms.% with a hematocrit ranging from 24% to 35%. The white blood count ranged between 10,000 and 18,000 with a normal differential. The platelets ranged from 16,000 to 175,000. Prothrombin time, bleeding and clotting times were normal. The blood urea nitrogen was 37 mgs.%. The alkaline phosphatase ranged from 13 to 39 Bodansky units. The acid phosphatase ranged from 2 to 3.4 units. The blood calcium and phosphorus were normal. The bromsulphalein test was normal. Several urinalyses showed innumerable white blood cells with a trace of albumin. Several urine cultures were negative. The stools were negative for occult blood. Bone marrow aspirations from the iliac crest and sternum were attempted but yielded only scanty marrow elements. X-ray films of the pelvis, both femurs, lumbar spine and ribs showed extensive lytic involvement suggesting bony metastases. An intravenous urogram failed to visualize the right kidney.

Because of the clinical and laboratory findings and despite failure to establish a positive histological diagnosis, a diagnosis of prostatic carcinoma with bony metastases was made. The patient was given estrogen and whole blood transfusions. The bleeding sites in the nasal mucosa were treated locally. Two weeks after treatment was begun dramatic improvement occurred. An orchidectomy is planned at a later date.

*Doctor Kalbfleisch:* There are several interesting facets to the problem presented by this patient. He was acutely ill with extensive replacement of his bone marrow by



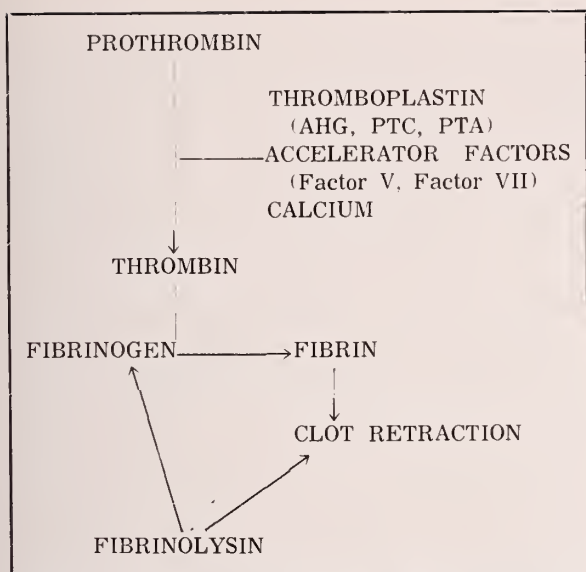


Fig. 1. Simplified scheme of the clotting mechanism.

metastatic tumor. In addition he was anemic and had a hemorrhagic diathesis.

Figure 1 presents a simplified review of the coagulation mechanism. One mechanism of bleeding in carcinoma of the prostate is hypofibrinogenemia. The first cases of hypofibrinogenemia to be reported were patients with traumatic or hemorrhagic shock, with thermal burns and in patients with anaphylactic reactions. Subsequently, hypofibrinogenemia has been reported as a complication of severe liver disease, of obstetrical abnormalities and of lymphoma and various metastatic carcinomas. Jurgens in 1930 reported the first case of hypofibrinogenemia in carcinoma of the prostate. Since then numerous similar cases have been reported. Higgins in 1942 demonstrated in prostatic secretion a proteolytic enzyme which digested fibrin and fibrinogen. He considered this substance a true fibrinolysin unrelated to trypsin. Subsequently, circulating fibrinolysins have been demonstrated in the majority of cases of carcinoma of the prostate developing hypofibrinogenemia. Furthermore, fibrinolysins have been identified following transurethral resections and suprapubic prostatectomies. This usually results in severe and prolonged bleeding. A similar complication can occur after almost any type of prolonged operative procedure, particularly when numerous transfusions have been administered. Tagnon in 1953 demonstrated prostatic tissue and also in malignant pros-

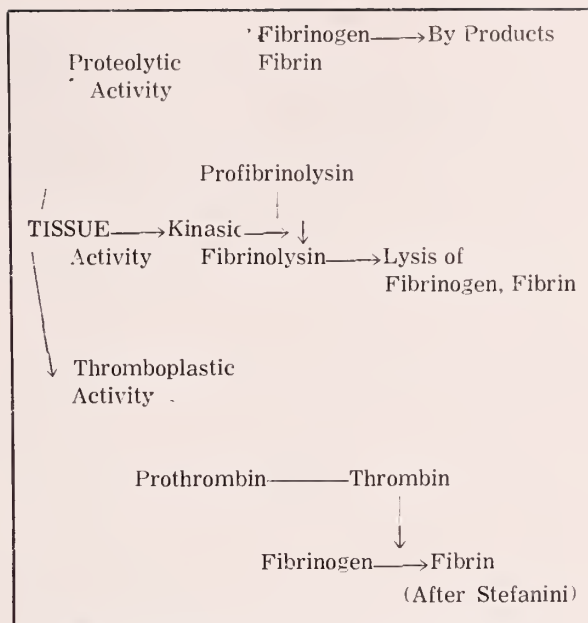


Fig. 2. Multiple potential mechanisms of fibrinogenopenia.

tatic tissue both in the primary tumor and in the metastatic lesions.

Figure 2 outlines some of the mechanisms believed to be responsible for the production of fibrinolysins. A simple explanation for this phenomenon is that the prostate or the carcinomatous tissue merely secretes a proteolytic enzyme which acts as a fibrinolysin. Others believe that the hypofibrinogenemia is caused by an overactivation of the clotting mechanism thereby resulting in intravascular clotting. This stimulates the normal fibrinolytic mechanism which further depletes the level of circulating fibrinogen and dissipates prothrombin and accelerated factors. A suppression of synthesis of fibrogen by the liver has been postulated. However, autopsy studies do not support this hypothesis.

Obviously, it is important to recognize the development of hypofibrinogenemia. The diagnosis is quite simple. One needs only to observe the size of the clot for several hours. The blood sample drawn to determine the clotting time will suffice. If lysis is suspected, the sample should be sterile in order to distinguish circulating fibrinolysins from those occasionally introduced by bacterial contamination. Treatment of hypofibrinogenemia due to circulating fibrinolysins is simple. Unfortunately, results may be transient. The principle of treatment is admin-

istration of sufficient fibrinogen to overcome the lytic mechanism. Fresh, frozen plasma, whole blood or fibrinogen solution are equally effective.

Another mechanism of hemorrhagic diathesis in carcinoma of the prostate is replacement of bone marrow by tumor. Here thrombocytopenia may predominate and treatment consists in administration of fresh, whole blood in plastic bags or siliconized containers. Renal failure with resulting azotemia may also be associated with marrow failure, anemia and thrombocytopenia.

Finally, the clotting mechanism may be deranged as a result of the presence of abnormal proteins. In 1933, Wintrobe and Buell demonstrated a protein precipitated in the cold from the blood of a patient with multiple myeloma. This was studied further by Lerner and Watson who introduced the term cryoglobulin. Some degree of cryoglobulinemia is frequently present in any disease involving the reticuloendothelial system. This includes the leukemias, lymphoma, collagen disorders, cirrhosis and nephrotic syndrome. The clinical manifestations of cryoglobulinemia are varied but usually the symptoms suggest an atypical Raynaud's phenomenon. The patient may give a history of sensitivity to cold, epistaxis, bleeding from mucous membranes or other sites may be present. Cases with multiple thrombosis, both venous and arterial, have been reported. Other symptoms such as diarrhea, melena, dyspnea, cyanosis or abdominal pain may occur. Various amounts of cryoglobulins are common but only amounts greater than one gram per cent are considered to be significant as a cause of symptoms.

A related condition is macroglobulinemia described by Waldenstrom in 1944. Macroglobulins are of a very high molecular weight. They cannot be distinguished by electrophoresis from abnormal proteins present in patients with multiple myeloma. They can be distinguished only by the pattern found by ultracentrifugation. The clinical course is quite similar to that of multiple myeloma and by some is thought to be a variant of this disease. All of the abnormal proteins have been implicated in the development of bleeding abnormalities. It has been shown that on precipitation they carry

with them some of the clotting factors. Deficiencies of Factor V, Factor VII, prothrombin and decreased platelets are the most common abnormalities reported. The fibrinogen level of our patient was determined initially because the presence of a fibrinolysin was suspected. Instead of being low it was unusually high and a dense plasma precipitate was noted after the specimen had been stored in the refrigerator over night. Following various studies this precipitate was found to be a cryofibrinogen. No cryoglobulins were present in the serum of our patient.

One case of cryofibrinogenemia has been reported in a patient with metastatic carcinoma of the lung and migratory thrombophlebitis. Recently another case was reported, thus accounting for our present knowledge of the chronic abnormalities associated with these cryoproteins. Figure 3 illustrates the rapid disappearance of the cryofibrinogen flocculin on warming. This is apparent in the second tube. The third tube demonstrates the clot which forms after the addition of thrombin to the washed and warmed cryofibrinogen. Fibrinogen de-

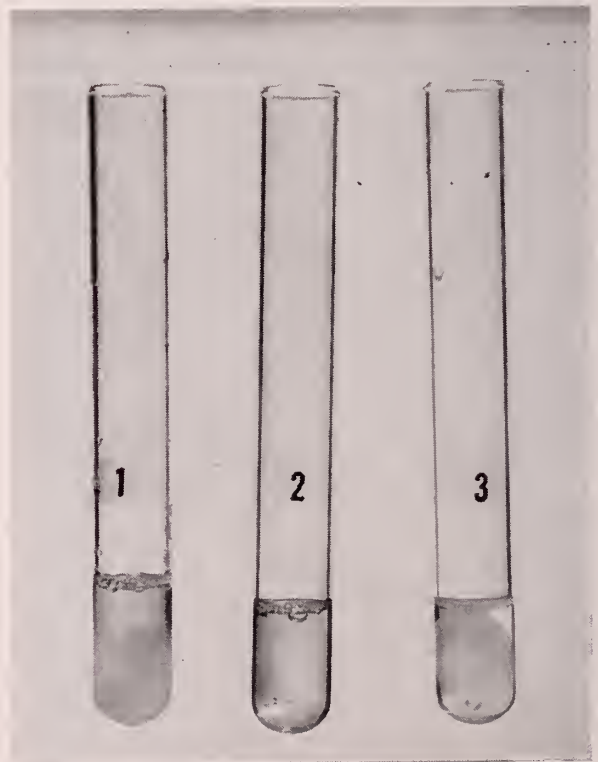


Fig. 3. Photograph of the cryofibrinogen in tube 1, the warmed clear plasma in tube 2, and the resulting clot upon the addition of thrombin in tube 3.



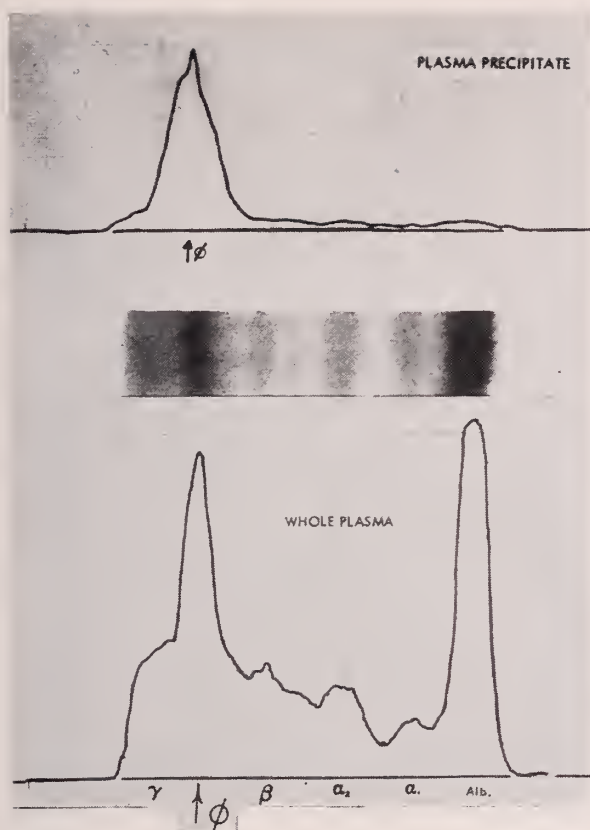


Fig. 4. Electrophoretic patterns of the whole plasma and washed, re-constituted cryofibrinogen.

terminations performed separately on the plasma precipitate and on the supernatant indicated that more than half of the total fibrinogen was precipitated by cooling to 40° C. Further clotting studies showed that prothrombin and accelerator factors were also precipitated along with the cryofibrinogen. Figure 4 shows the electrophoretic patterns of the whole plasma and cryofibrinogen.

This illustrates an interesting phenomenon whereby a hemorrhagic diathesis and increased intravascular clotting can be present simultaneously. Perhaps our patient is overcompensating by an overproduction of fibrinogen in an attempt to combat a fibrinolysin. It is conceivable that this resulted in the production of the abnormal fibrinogen. Since the patient has been receiving estrogens his fibrinogen level has progressively dropped from 2500 mg.% to 700 mg.%.

In summary there are three possible mechanisms which may produce a hemorrhagic diathesis in carcinoma of the prostate. First

an active fibrinolysin elaborated either by carcinomatous tissue or produced by intravascular clotting may lead to serious bleeding. Secondly, a myelophthisic anemia or thrombocytopenia may result from marrow replacement by metastatic tissue or marrow depression by uremia. Lastly, abnormal proteins which on precipitation may deplete the blood of factors that are necessary for proper clotting may be present. It is important that these mechanisms be recognized since they are treated differently. The course of this patient suggests that estrogen therapy interferes with the mechanism responsible for the production of cryofibrinogens. In his case treatment resulted in a very satisfactory clinical remission of all his hemorrhagic manifestations.

*Doctor West:* First of all I would like to review the relationship between cancer of the prostate and the serum levels of alkaline phosphatase. There is some confusion regarding the significance of normal levels and of elevated levels of serum acid and alkaline phosphatase in cancer of the prostate. This patient had an elevated alkaline phosphatase level. This enzyme is produced by osteoblasts. When destruction and degeneration of bone occur, elevated levels of this enzyme are found. It is important to remember that alkaline phosphatase levels may be elevated also in patients with liver disease and that high levels are very likely to be found when the bile flow is obstructed. In normal children, who have continued osteoblastic activity, alkaline phosphatase levels are slightly higher than in adults. Therefore, it is obvious that elevations of the alkaline phosphatase levels are not at all specific for prostatic cancer.

On the other hand, the production of acid phosphatase is confined to the prostate. Evaluations of the serum levels of this enzyme are almost specified for cancer of the prostate. However, elevated acid phosphatase levels are in general found only in those cases of carcinoma of the prostate in which the lesion has extended beyond the capsule. Recently, it has been found that if one incubates acid phosphatase with 1-tartrate, the activity of the major portion of the acid phosphatase is eliminated. A small portion remains active and this fraction is more spe-



cifically associated with prostatic carcinoma than is the total acid phosphatase and is now referred to as "prostatic" acid phosphatase. This determination is not carried out at present in this institution. About one-third of the patients with demonstrable bone metastasis from carcinoma of the prostate have normal acid phosphatase levels when standard methods for determining levels of this enzyme are used. In such patients the "prostatic" fraction of acid phosphatase may be significantly elevated. Indeed it is probable that some patients with carcinoma of the prostate without invasion of the surrounding tissues may have elevated levels of this particular fraction. This suggests that it may be possible to diagnose certain cases of prostatic cancer before the occurrence of metastases. The reason for normal levels of total serum acid phosphatase in patients with obvious bone metastases is not clear. There is no obvious correlation between the level of the acid phosphatase and the histology of the tumor.

One should remember that slight elevations of acid phosphatase may occur in prostatitis and after prostatic massage.

Concerning treatment, it has been shown that the life expectancy has increased since the advent of estrogen and other types of hormonal treatment. Previously, about 10% of patients survived five years after diagnosis of carcinoma of the prostate with metastasis had been made. Following the advent of treatment with estrogens the incidence of five-year survivals rose to about 30%. It appears that the five-year survival rate has been increased further by the use of orchidectomy. In regard to the most satisfactory type of estrogen compound to use, the search for a tumor-inhibiting compound without feminizing effects is still being pursued. To date, no such compound has been found. However, there is some evidence suggesting that stilbestrol diphosphate may be more specific in inhibiting the prostatic tumor than stilbestrol. In point of fact, we do not know how stilbestrol or other estrogen compounds inhibit tumor growth. There are several possibilities. One is that the compound inhibits the secretion of androgens by the testicle and the adrenals. It is

also possible that estrogens may have a direct action upon the tumor. This new diphosphate compound can be given in large doses without producing some of the undesirable side effects that are observed with stilbestrol. The use of stilbestrol diphosphate may be of benefit in patients who are experiencing pain in spite of orchidectomy. There is no evidence that large doses of estrogens are preferable to smaller ones. The evidence from clinics in which large doses have been used following failure of smaller doses is varied although some clinicians do believe that the administration of very large doses is helpful. Doctor Perry Hudson has used very large doses of stilbestrol (as high as several hundred milligrams daily), without any greater incidence of side effects than with the standard dose. Occasionally edema occurs in patients who are receiving stilbestrol, particularly patients who have a poor cardiovascular reserve. The compound "Tace" apparently does not produce edema. Tenderness of the breast is a common side effect with the administration of estrogen but usually is of minor degree when doses of five to ten milligrams per day are given. It is interesting that breast metastases from prostatic carcinoma have occurred in patients receiving estrogens whereas no cases of breast metastases have been reported in patients who have not received estrogens.

Adrenalectomy has been used in the treatment of prostatic carcinoma. This approach to the treatment is based on the fact that approximately two-thirds of the excreted 17 keto steroids are of adrenal origin. Theoretically it should be beneficial to remove the source of androgens even though these compounds are less potent than testosterone. However, the results of adrenalectomy have been in general disappointing and I believe that very few adrenalectomies are now being done for this condition. Also, it is known that hydrocortisone and hydrocortisone-like compounds will suppress completely adrenal androgen output. This approach has been used when other measures have failed to suppress the secretion of adrenal androgens. In general, the results have been poor, although it should be pointed out that the patients in whom this has

been tried have been patients with far advanced disease.

Recently we have been interested in the relationship between pituitary secretions and the growth of tumors. We selected prostatic carcinoma as being an interesting tumor to study because the effect of hypophysectomy in carcinoma of the breast had already been evaluated. We attempted to interrupt the pituitary function of six patients by injecting radioactive chromic phosphate into the pituitary gland. The patients were selected for this treatment because of their extremely poor condition. Every other form of treatment had been tried and life for them was no longer tenable since they had become narcotic addicts. They accepted the operation with the idea that they might not survive and that the treatment might not be effective. Unfortunately our results were such that we could not reach any clear-cut conclusion. We were able to follow three patients long enough to show that there may be some objective evidence of improvement following suppression of pituitary function. Two patients had temporary subjective remission and one patient had very good subjective and objective evidence of remission. We have since added two cases of other workers to this group of patients and have concluded that in about half of the cases of carcinoma of the prostate in whom exacerbations have occurred after orchidectomy, one can expect some temporary remission following complete suppression of pituitary function. The operation is a radical one and the mortality rate in patients who are severely ill is in the order of 25%. Ablation of pituitary function was attempted mainly with the idea of hoping to learn something about factors which control the growth of prostatic tumors. The rationale behind this was that there are several possible ways in which hypophysectomy may be beneficial. Adrenal function would be interrupted indirectly as well as remaining testicular function. It is also possible that the removal of the source of growth hormone might result in slower tumor growth.

*Doctor Hammarsten:* Is it correct, then, that you would no longer recommend hypophysectomy in a patient with prostatic carcinoma who has had orchidectomy and presents with symptomatic evidence of metastatic disease?

*Doctor West:* I would recommend it only in those very specific situations in which pain and narcotic addiction have made life unbearable for the patient. At this point, I would like to add that we produced a remission of four or five months duration in such a patient recently by simply cutting the pituitary stalk and placing a plastic plate over the sella to impair the development of collateral circulation to the gland. At autopsy approximately six months after the procedure the pituitary gland was almost completely destroyed. Apparently this was due to ischemic necrosis. The surgical procedure is much simpler than hypophysectomy. I would also like to add that the maintenance of a patient with suppression of pituitary function may be somewhat complicated.

*Q.* Would you discuss some of the methods of controlling a tumor locally?

*Doctor West:* The local control of the tumor is usually simple. Repeated transurethral resections can be done to relieve obstructive symptoms. Radioactive phosphate has been injected into the prostate. This method of treatment although not curative, seems to have some interesting possibilities.

#### REFERENCES

1. Jurgens, R., and Trautwein, H.: Über Fibrinopenie beim Erwachsenen, nebst Bemerkungen über die Herkunft des Fibrinogens. *Deutsches Arch. F. Klin. Med.* 169: 28, 1930.
  2. Huggins, C., and Vail, V. C.: Plasma Coagulation and Fibrinogenolysis by Prostatic Fluid and Trypsin. *Am. S. Physiol.* 139: 129, 1943.
  3. Tagnon, H. J., Whitmore, W. F., and Leone, L. A.: Prostatic Fibrinolysin—Study of a Case Illustrating Role in Hemorrhagic Diathesis of Cancer of the Prostate. *Am. J. Med.* 15: 875, 1955.
  4. Stefanini, M.: Fibrinolysis as a Mechanism of Hemorrhagic Tendency. *Acta. Haemat.* 20: 76-85, 1958.
  5. Ham, T. H. (editor): A Syllabus of Laboratory Examinations in Clinical Diagnosis, Harvard Univ Press, Cambridge, Mass., 1950.
  6. Mackay, I. R., Eriksen, N., Motulsky, A. G., and Volwiler, W.: Cryo- and Macroglobulinemia: Electrophoretic, Ultracentrifugal and Clinical Studies. *Am. J. Med.* 20: 564-587, 1956.
  7. Henstell, H. H., and Kligerman, M.: A New Theory of Interference with the Clotting Mechanism: The Complexing of Euglobulin with Factor V, Factor VII and Prothrombin. *Ann. Int. Med.* 49: 371-387, 1958.
  8. Johnson, P. C., West, K. M., and Rutledge, B. J.: Destruction of the Hypophysis with Radioactive Colloidal Chromic Phosphate in Cancer of the Prostate. *J. of Neurosurgery*, Vol. XV, No. V., p. 519, 1958.
- 924 N.E. 13th, Oklahoma City, Oklahoma



## ABSTRACTS

### Vascular Lesion of Hereditary Hemorrhagic Telangiectasia\*

ROBERT M. BIRD,\*\* and WILLIAM E. JAKES,\*\*\*  
Oklahoma City, Oklahoma

New England Journal of Medicine, 260: 597, 1959

A clinical and pathological study on an elderly man with hereditary hemorrhagic telangiectasia is presented. The findings emphasize the fact that the telangiectasia involved large and small veins primarily. Arterial involvement was inconspicuous. All major organ systems were involved, and in each the venous defect was diffusely distributed. Clinical bleeding seemed to depend more on chance or accessibility of a tissue to trauma than on any predilection of the disease for a particular organ system. It is suggested that the cardiovascular disease resulted from the presence of increased numbers of arteriovenous communications.

\*From the departments of Medicine and Pathology.

\*\*Associate Professor of Medicine.

\*\*\*Professor of Pathology.

### Transplacental Infection of Fetuses of Rabbits with Herpes Simplex Virus

JOSEPH Z. BIEGELEISEN, Jr.,\* and L. VERNON SCOTT.\*\*

Proc. Soc. Exper. Biol. & Med., 97: 411, 1958

Herpes simplex virus was isolated from the fetuses of five rabbits which had been inoculated on the scarified cornea with this infectious agent. The isolated virus was identified with specific immune serum. The possible role of this virus in fetal infections in human beings is discussed.

\*Communicable Disease Center, Chamblee, Georgia.

\*\*Professor of Microbiology.

### Potential for Rehabilitation in Quadriplegic Teen-Agers

HERBERT KENT,\* Oklahoma City

The Journal of the American Medical Association, 169: 817, 1959

With an increasing accident rate, spinal cord injuries are becoming more prevalent and are now being seen in the teen-age group. Potential for rehabilitation is better in teen-agers than in adults. For achieving success, prompt comprehensive physical medicine and rehabilitation effort is necessary. Utilization of the modern techniques of rehabilitation, with meticulous attention to the skin and to the urinary and neuromuscular systems, makes a useful social and economic life feasible. It is possible not only to "break one's neck" today but to live with it moderately well.

\*Associate Professor, Department of Physical Medicine.

### Plantar Wart Treatment with Ultrasound

HERBERT KENT,\* Oklahoma City

Archives of Physical Medicine and Rehabilitation, 40: 15-18, 1959

Plantar warts respond to ultrasonic therapy, particularly when single and if treated early. In nine patients with such lesions, the results suggest that ultrasound is effective in more than 90 per cent of these cases. Those patients previously given x-ray and podophyllin therapy show delayed responses to ultrasound. Pain is relieved almost immediately followed by necrosis of the wart. Normal skin is unharmed by the technic suggested. Changes evoked in these warts suggest either a vascular, molecular, or viral effect.

\*Associate Professor, Department of Physical Medicine.

### Relative Potencies of Chlorpropamide and Tolbutamide in Man

KELLY M. WEST\* and STANLEY R. McCAMP-BELL.\*\*

Annals of The New York Academy of Sciences 74: 473-477, 1959

Chlorpropamide, 1 gm., produced significantly greater hypoglycemic responses in normal subjects 1 hour after ingestion than did tolbutamide, 1 gm. Chlorpropamide, 0.25 gm. and 0.5 gm., produced hypoglycemic responses in normal subjects 2 hours after ingestion comparable to doses of tolbutamide twice as great. Since it is unlikely that either drug has been appreciably metabolized or excreted 1 to 2 hours after ingestion, the relatively greater potency of chlorpropamide probably is not attributable entirely to its longer biological half time.

Seven normal subjects had serum chlorpropamide levels averaging 11.5 mg. per cent 2 hours after ingesting chlorpropamide, 1 gm., indicating that about one third of this dose was present in the plasma at that time.

Chlorpropamide, 0.5 gm., significantly increased the rate of disappearance of intravenously injected glucose. In one subject the effect of an intravenous injection of chlorpropamide, 0.5 gm., on the glucose disappearance rate was strikingly similar to that of 1.8 units of insulin administered intravenously.

Two findings that have resulted from studies carried out since this report was drafted are of considerable interest in connection with the initial findings. We found that serum levels of chlorpropamide two hours after the drug was administered orally were much higher than serum levels of tolbutamide after comparable doses of that drug. We found also that when chlorpropamide and tolbutamide were administered intravenously the hypoglycemic effects during the first hour were not significantly different.

\*Instructor in Medicine, University of Oklahoma School of Medicine.

\*\*Clinical Assistant in Medicine.

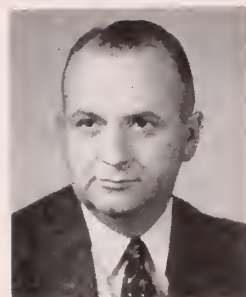




McDONNOLD



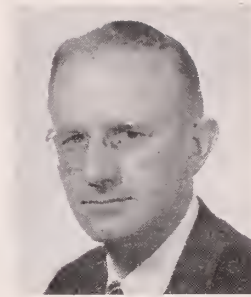
HUSEN



KAVAN



LESLIE



GATCHELL

### Five New Faculty Appointments

Recent faculty appointments at the Medical Center include five instructors and clinical assistants in urology, ophthalmology, surgery and physical therapy.

L. C. Kavan, M.D., was named instructor in urology; Samuel B. Leslie, M.D., clinical assistant in ophthalmology; Frank Gaffney Gatchell, M.D., and George F. McDonnold, M.D., clinical assistants in surgery; and Luiese Husen, instructor in physical therapy.

Doctor Kavan, a 1942 graduate of Harvard Medical School, was a flight surgeon in the United States Air Force for three years and did general surgery and general practice at Schuyler, Nebraska, for ten years.

He then served residencies in urology at St. Vincent's Hospital, Toledo, Ohio, and the University of Texas Medical Branch at Galveston before coming to Oklahoma City.

Doctor Leslie, a 1942 graduate of the School of Medicine, returned to the Medical Center to take his residency in ophthalmology from 1956 to 1958.

Earlier, he served three years in the U. S. Army Medical Corps, finished a surgical residency at Western Oklahoma State Hospital and was in general medical and surgical practice at Okmulgee for nine years.

The two new appointees to the Department of Surgery are also graduates of the School of Medicine.

Doctor Gatchell, class of '43, interned at Indiana University Medical Center and was a resident in pathology, then general surgery at Wesley Hospital, Oklahoma City. He was a fellow at the University of Minnesota (Mayo Foundation) in 1951-52 and again from 1955-57. He was awarded a Science degree in surgery there. He returned here in 1957 to enter private practice. Doctor Gatchell's research has been in open heart surgery.

Doctor McDonnold, class of '52, interned at Wesley Hospital and completed a general surgery residency at the Oklahoma City Veterans Administration Hospital in 1957. He has participated in studies of post gastrectomy patients.

Miss Husen joined the School of Physical Therapy this summer after working 20 months as staff therapist at Children's Convalescent Hospital, Bethany. She attended Huron College and General Beadle State Teachers College in South Dakota before receiving her Bachelor of Science degree in physical therapy from the University of Oklahoma in 1957.

# PRESIDENT'S LETTER



## REFLECTIONS ON AN EFFORT— ONE MAN'S VIEWS

Basically the whole philosophy of a service type contract is objectionable and contrary to all the principles of economic freedom. As a Pioneer American Citizen, I could never accept such an infringement upon my liberties and such an abrogation of implied constitutional rights. However, although it may be unfortunate I am not a Pioneer American Citizen for I find myself in a greatly advantageous position contrasted to those courageous souls.

I acknowledge an indebtedness to the people collectively for my entire welfare; my education, the defense of my home, and the promise of intellectual freedom for my children. Regardless of how I try to shield my eyes I cannot escape the brilliant light of these facts.

Furthermore, I personally accept the following statements as valid and would gravely question the sincerity of any contemporary physician who did not acknowledge them to be true and factual:

- (1) Our senior citizens require more medical service than any other segment of our population.
- (2) Our senior citizens are less able to meet the economic and social demands of America's tremendously expanding economy which has been for the last 20 years of a definite inflationary nature.
- (3) Self-respect and freedom from indebtedness are essential and indispensable morale factors among the citizens of any free nation. This is particularly the case among those older citizens who feel that their productivity and personal significance is rapidly waning. In order to maintain their support in any contest of political philosophies, it is important that they feel cared for and protected by the society in which they live.

In accepting these facts, I must support a medical-care plan which will offer something sound and good and new to our older citizens who find themselves in an environment which is threatening, insecure, and growing worse with each passing year. This may be social welfare talk but I would rather accept it at the individual level than at the governmental

level, of professional rather than political design. If we adopt such a plan and make such an effort we can salvage at least the good feeling that comes with having tried. Certainly we may fail and there is a real possibility that we have come too late with too little but we must make the effort.

I believe there should be certain rigid safeguards in the development of any program involving a limited fee for virtually unlimited service. These safeguards are fairly well established in the proposed plan and pertain both to the selection of individual subscribers and the services to be rendered.

I also believe that such a policy should be subjected to cancellation on an individual or collective basis and there should be some provisions made for the gradual termination of the program in any area of the state. It should be agreed that any change in the income ceilings or benefit schedules must have the approval of the State Medical Association. Since we as physicians hope to be credited with the development of this program, I think we should make certain that we control it in fact rather than fancy. Such a program should never be compulsory and should be subject to constant public and professional scrutiny.

I would hate to have the responsibility for deciding this question myself. I sincerely feel that the decision of the Medical Association of this state will be the better choice and I will accept it without protest. If the Association rejects the plan, I think we should investigate the basis of the rejection and devote more serious study and additional time to developing a more acceptable program.

If there are enough of us who feel that we must do something then we have no alternative but to work until we develop that "something" into a popular and realistic medical care program for our Senior Citizens.

As I see it, this is vital missionary work in the field of true Christian principles. I gladly offer my time for whatever purpose it may serve.

MARK R. JOHNSON, M.D.,  
Senior Citizen's Insurance Committee

The above letter was received two days before the Council meeting of Saturday, August 1. Although the action of the House of Delegates on August 2 negated some of the philosophy expressed, I feel that the above letter is worthy of being read by every member of the OSMA.

*Alfred J. Baker, M.D.*  
President



**NOW SHE  
CAN COOK  
BREAKFAST  
AGAIN**



**... WHEN YOU PRESCRIBE NEW**  
**MORNIDINE<sup>TM</sup>**  
(BRAND OF PIPAMAZINE)

A new drug with specific effectiveness in nausea and vomiting of pregnancy, Mornidine eliminates the ordeal of morning sickness.

With its selective action on the vomiting center, or the medullary chemoreceptor "trigger zone," Mornidine possesses the advantages of the phenothiazine drugs without unwanted tranquilizing activity.

Doses of 5 to 10 mg., repeated at intervals of

six to eight hours, provide excellent relief all day. In patients who are unable to retain oral medication when first seen, Mornidine may be administered intramuscularly in doses of 5 mg. (1 cc.).

Mornidine is supplied as tablets of 5 mg. and as ampuls of 5 mg. (1 cc.).

G. D. Searle & Co., Chicago 80, Illinois.  
Research in the Service of Medicine.

## The State Agency Evaluates Hospital Planning\*

The Hill-Burton hospital survey and construction program is now entering its 13th year of operation. While statistics alone do not reveal the full benefits of the hospitals and other facilities that have been built, they do convey quite an impressive story. Since its inception, the Hill-Burton Program in Oklahoma has completed 106 projects, providing 4,337 beds. In addition, 32 projects are currently in the planning or construction stage and these will provide 1,074 more beds.

A general summary of the Oklahoma program as of June 1, 1959, gives a total of 138 projects; 5,411 beds; at a total cost of \$63,485,167.92, of which the Federal matching share is \$24,059,382.59.

With such a record of accomplishments, it must be pretty obvious that somewhere, at sometime, there must have been considerable thought, research and planning given to developing the regulatory administrative framework under which all of the states would conduct the program at the state level. The initial planning group was known

### PAUL A. SNELSON

Director, Division of Hospital Licensure and Construction, Oklahoma Department of Health, Oklahoma City, Oklahoma

as the Commission on Hospital Care, composed of selected personnel from the Kellogg Foundation, the American Hospital Association and the U. S. Public Health Service. In a most efficient manner, this Commission produced within a two year period the basic structure on which the regulations and guidance procedures were later adopted by the Federal Hospital Council and the Surgeon General.

Even though the regulations governing the development of a state program were soundly conceived, as has been well demonstrated by a minimum of relatively minor changes during the past twelve years, some agencies have felt that they were not quite specific enough. It must be borne in mind, however, that these regulations and the procedures were designed to uniformly meet the needs of the majority of the states and territories, and that they were intentionally made as liberal as possible in order to per-

\*Presented at Regional Conference on Development of Principles for Planning the Future Hospital System, held April 23-25, 1959 at New Orleans, and jointly sponsored by the American Hospital Association and the U. S. Public Health Service.



mit good plan development even in those areas having individual or peculiar characteristics. This liberality presented some administrative difficulties initially at the State Agency level, which, as a consequence prompted a general attitude of conservatism. I believe it can be truthfully stated, and without any criticism, that too many of the State Agencies were "following the book" too closely rather than using initiative and aggressive foresight.

There were other factors too, that had a distinct bearing on this conservative approach. Included were some yet to be fully explored such as the acceptance, utilization and support of the hospital in a manner that would assure the highest quality of care possible. Today we know that good individual and community health is a must in everybody's budget. But a decade ago this was pretty much an unknown quantity. Though there seems to be some grumbling about the ever-increasing cost of hospital and medical care, this becomes very secondary, or probably vanishes when the results of good care becomes a personal thing.

So, the economic situation does have a bearing on planning. We now feel reasonably sure that the public is not willing to compromise too much or too far on the quality of care.

Through such experiences and progressively better planning, most, if not all of the State Agencies began to feel more secure in their own abilities and recognized that the flexibility of the Federal regulations permitted the development of a sound State program.

Like so many resultants of progress, hospital programming, planning and construction is not a static situation. We cannot permit ourselves a momentary pause after having reached a plateau of evolution, for the plateau is only transitory because of the ever shifting character of hospital techniques and procedures, modern equipment, socio-economic changes, and advancing methods of medical procedures. So, in planning for the hospital of tomorrow it is highly imperative for those responsible for setting patterns for care to keep their ideas flexible, their minds alert to changing methods, and their thinking projected towards

needs of the future. It behooves each State Agency, as a vital cog in translating these objectives into a practical and workable program to do its utmost to fulfill its obligation of service to the hospitals and the general public.

While the State Agencies have uniformly kept faith with the original intent of the Federal Act by achieving a distribution of beds and facilities, and giving prior consideration to those areas with least financial resources and areas of greatest relative need, the path was not exactly covered with dewey rose petals. The real problem was to fulfill these basic obligations while at the same time not to be neglectful of the intermediate and urban teaching facilities that form the backbone of a coordinated system of hospitals. Some problems present themselves that are still due consideration, particularly so with the advent of a renovation and modernization program. There has been a marked inconsistency in the reportable number of beds between various hospital agencies and the State Agency. Compound this discrepancy with other unsolved factors such as the lack of a uniform rated capacity procedure, and uniform criteria for classifying non-acceptable and replaceable beds, we began to realize that a good foundation is essential to good planning.

Pursuing this thinking another step, the planning agencies are faced with the problem of a new direction of planning and programming created by medical and technical advances, a change in the character of the patient load, demographic changes, and a closer integration of the various types of hospital and health facilities.

So, the challenge to the State Agencies is to gear their statewide programming to a shifting scene.

### **Rural and Community Problems**

Generally speaking, there has been a marked degree of response in the small communities in providing themselves with hospital and health facilities. This interest has been the key to achieving a better distribution of beds and facilities. Paradoxically, it has become somewhat contagious to the extent that it has generated a new problem. Smaller communities which were never vis-

ualized in the State Plan, for valid reasons to conform to the governing regulations, have likewise acquired a desire to construct a health facility, mostly for the purpose of holding or obtaining a doctor. While we fully appreciate the predicament of these smaller communities, interspersed smaller facilities would constitute a serious threat to the welfare of previously built facilities that have been established on a planned basis. Failure to obtain Hill-Burton assistance does not necessarily curb their ambition. In addition, not all such facilities are eligible projects. At the present, there is no effective control over facilities built outside the Hill-Burton Program, nor are we so sure that there should be because of its autonomous nature. Nevertheless, consideration must be given to the fact that various types of health facilities have been built and will continue to be built outside of the Hill-Burton Program. It would seem therefore that all groups and agencies concerned with any phase of health facilities have a common interest, as well as the responsibility for the encouragement of rational community planning.

#### **Urbanization and Urban Planning**

The greatest impact of facilities constructed outside the Hill-Burton Program has been in the urban areas. Hospital usage has become, to some extent, a competitive situation. This in turn has led to competition in construction. Through experience, the value of a well-developed program, embracing long-range as well as immediate project planning has become a considered necessity by both the sponsor and the State Agency. Difficulties arise, however, where there are multiple facilities in an urban area, each of which is solely concerned with its own individual destiny rather than considering its neighbor, or its perspective as a community facility.

We know there has been interest manifested by higher hospital authorities in total metropolitan planning. While it may appear to be higher strata thinking, actually it is an existing reality. Practically all other types of metropolitan planning is a result of coordinated effort. Why shouldn't this be true of hospitals and all of the related health facilities? Why should there be cost-

ly duplication of services and facilities with all of its attendant problems? Would it not be far better if all hospitals within the hospital service area took the initiative collectively in developing a long-range construction program that would be geared to the expected economic and industrial growth of the area?

We find little opposition to the principle that a total urban survey would be of invaluable assistance to eligible and non-eligible hospitals alike. The big question is how, and by whom is the job to be done. I regret that we have not, as yet, found the right answer in Oklahoma. If this problem is prevalent in other states perhaps further exploration on ways and means of metropolitan planning is indicated on a national scale.

#### **Modernization and Replacement**

Another area of State Agency planning problems is concerned with modernization, expansion and replacement of existing facilities, particularly those hospitals that make a greater contribution in teaching responsibilities, and in elevating standards of care. Of course we know that our basic problem is priorities, but we also have other problems that may be of equal or greater importance in making this phase operable.

From a program and design standpoint, a modernization or expansion project is the most difficult to work out. Creating a highly efficient and operable facility out of an outmoded, sub-standard structure is a real challenge. If approached properly, an extensive physical survey of the existing facility is basically essential. This requires both skill and time, either of which is a commodity that State Agencies have little of in terms of quantity. Regardless of the amount of assistance available from the sponsor, if and when a modernization phase becomes a major function of Hill-Burton, there will undoubtedly be an additional burden thrust upon an already overtaxed State Agency office. It is quite apparent, therefore, that in addition to the vast amount of funds needed to implement the program, somehow the State Agency must be in a position to accept its responsibility.



Additions to existing facilities have already necessitated a modest amount of modernization, however, the need extends far beyond that point. Practically all of our older hospitals were constructed before there were guidance standards to follow. Bringing these facilities up to minimum construction standards has, in many instances, been costly and still presents difficulties in operation.

Also, there have been some replacement activities within the Hill-Burton Program. Generally this was brought about by voluntary closure of one or more sub-standard facilities in a community upon assurance of obtaining a new community-type facility.

While this limited experience will be an invaluable tool in more extensive planning, there still remains the vast problem of capital replacement, particularly in the older sections of the country where some of our traditionally fine hospitals are located.

Mr. George Bugbee, President, Health Information Foundation, New York City, set the stage most clearly and capably on Urban Planning at the March, 1959, Conference of the Surgeon General with the State and Territorial Health Officers. Following a brief background of statistics, he stated, "Such planning certainly bears on any change in priorities; in fact, only with adequate planning can priorities be intelligently operative." Reference was also made to the atmospheric cost of replacement, and the financial obstacles. Because of the difficulty of establishing a satisfactory priority schedule for replacement projects under the framework of the Hill-Burton Act as it now stands, his suggestion on an urban renewal feature is intriguing and possibly the solution to the problem. But, as he aptly points out, "A master plan is needed in every city."

So, once again we see the importance of coordinating planning. Only this time the task has reached new proportions. In addition to estimating the bed need for a given area at a given distant time, the distribution, character and type of facilities must be given proper consideration.

#### **Integration and Health Facilities**

Prior to 1954 the duties of the State Agency were relatively simple, although not

necessarily simple in execution. Until that time we were only concerned with five principle categories of facilities. With little or no interest in Chronic Disease hospitals, there remained only four categories of primary concern, each of which was most usually in a sphere to itself. And with the major activity centered on intermediate and community acute general hospitals in most states, there was little necessity to be concerned with multiple and varied health facilities, except for an occasional health center.

With the advent of the Medical Facilities Act of 1954 comprehensive community and area planning warranted a new emphasis. With new developments in the Welfare field, and a properly directed and growing interest in total care facilities by the hospital people, advance planning has taken on an entirely new look. For example, general hospitals are seriously considering the feasibility of operating a nursing home as an adjunct facility. In fact, a number of such combination or supplementary projects have already been approved. While the future of this new function is difficult to predict, such facilities operated by or having a close working relationship with one or more community general hospitals, seemingly would create a desirable stimulus of increased quality of care, even if such instances were limited to sporadic pilot projects. It is quite possible however, that the hospital interest in the nursing home field may lead into new horizons now that welfare benefits are approvable for hospitalization.

Until now the main interest of existing general hospitals has been in the construction of additional beds and modernizing their outmoded physical facilities. This is quite understandable. But doctors and hospitals alike are seeking new or expanded services such as physical medicine, long-term care, progressive patient care, teletherapy, modern diagnostic units and outpatient departments. When these elements will have been substantially provided, they will have all but closed the gap on total care from home, to hospital, to long-term care, to rehabilitation and return to the home where the cycle began.

Admittedly, it is not as simple as it sounds. In fact it may occur only in the hospital of tomorrow, which in turn may not be known except for isolated instances in our generation for there are three major obstacles to its fulfillment. The most dominant is money with which to build them. Then too, it would be tragic error if these facilities developed without benefit of sound advance planning. Lastly and probably the first to be overcome will be the problem of payment for care. Better care and broader services can only lead to one direction and that is higher costs. There is a great likelihood however that the base of hospitalization insurance benefits will be broadened in response to public demand.

Much has been written and even more has been said about the recent advances in concepts of care that have a decided influence on community planning, urban planning, statewide planning and even the individual project design. More is yet to be heard since it is evident that we are on the threshold of a new era in hospital utilization. To meet and assume the expected leadership in this almost revolutionary and complex challenge, state level planning agencies are compelled to adjust their pro-

grams in relationship to the new concept of care by:

1. Continual encouragement of thorough community planning,
2. Encouragement of urban planning,
3. Coordinate statewide planning to assure a proper balance of facilities concerned with the various stages and types of illness and debilitation,
4. Reinforcing existing personnel to permit a broader and more accelerated study of the many aspects bearing on total care, and
5. Providing technical assistance and guidance on modernization projects.

In preparing this paper, an effort was made to keep in mind the major problems of a representative type state agency so that a cross section perspective could be obtained. While there are some agencies more fortunate than others in regard to staffing and budgeting funds, I think most will agree that the foregoing is an accurate general analysis. But regardless of personnel, funds or variations in scope of activities, all of the state program directors are sincere and most willing to produce to the utmost of their abilities, and will continue to do so.

**Plan to Attend the**

## **Twenty-Ninth Annual Fall Conference**

# **OKLAHOMA CITY CLINICAL SOCIETY**

**Biltmore Hotel**

**Oklahoma City**

**October 26, 27, 28, 1959**

# Medical News

## **First National Conference on Medical Aspects of Sports Injuries to Be Held in Dallas**

The first national Conference on the Medical Aspects of Sports, sponsored by the American Medical Association, will be held Nov. 30 in Dallas, Texas.

The one-day meeting is for college and high school athletic directors, coaches, trainers, and doctors. "These are the individuals who are charged with responsibility for the health of athletes," said Doctor Allan J. Ryan, Meriden, Conn., chairman of the AMA Committee on the Medical Aspects of Sports.

Doctor Ryan pointed out that the conference will deal with a wide variety of medical subjects which affect the athlete's total well being. These include training, conditioning, prevention and treatment of injuries, and the physiology of exercise.

Highlights of the program will be panel discussions of on-field responsibilities of the team physician and prevention of head injuries in athletics. Other discussions will concern amphetamines and the attitudes of athletes; a medical program for high school football; exercise and the oxygen debt; the biodynamic potential of the American male; exercise and the kidney, and the pathology of trauma.

The national Conference on the Medical Aspects of Sports will precede the clinical meeting of the AMA, which begins Dec. 1 in Dallas and continues for four days.

## **Alpha Omega Alpha Schedules Fall Lecture**

The Alpha Omega Alpha annual Fall lecture will be held this year on October 6th, 1959 at 8:00 p.m. in the auditorium of the University of Oklahoma School of Medicine. Guest speaker for the occasion will be Sir George Pickering, Regius, Professor of Medicine, Oxford University, England.

## **ACP Outlines Autumn-Winter Postgraduate Courses**

The American College of Physicians has outlined their Autumn-Winter Postgraduate courses for 1959-1960. Seven different courses will be presented in as many cities. In encouraging postgraduate study, the College extends this service to its Fellows and Associates. Where the facilities are available, these courses will be open to non-members with adequate preliminary training.

First of the courses will be "Selected Topics in Internal Medicine" to be held September 28-October 2, 1959 at Georgetown University School of Medicine, Washington, D. C. Subject matter for this course will range from newer applications of the oldest diagnostic technique—auscultation of the heart—to the newest in diagnosis—metabolic disorders.

"Selected Subjects in Internal Medicine" will be the topic of Course No. 2, which will be held October 5-7, 1959 at the University of Buffalo School of Medicine, Buffalo, New York. This three-day course was designed to emphasize recent advances in selected aspects of medicine in which current investigations contributed.

The third course, "The Science of Internal Medicine," will be held November 2-6, 1959 at the State University of New York Upstate Medical Center, Syracuse, New York. Designed to review some of the scientific background of recent advances of disease state, this course consists of animal demonstrations of the nature of arrhythmias, panels and lectures.

On November 20 through December 4, 1959, Tulane University School of Medicine, New Orleans, Louisiana, will host the fourth postgraduate course on "Clinical Cardiology." The course will acquaint the participants with new developments in the field of cardiovascular disease.

Site of the fifth course will be Cornell University Medical College and the Hospital for Special Surgery, New York City, from



January 11 to the 15th, 1960. Topic for this meeting will be "Current Concepts of the Rheumatic Diseases—Their Recognition and Management." The aim of this course is to present current information regarding the composition of healthy connective tissue, its physiology and metabolism, and to critically discuss the nature, the methods of recognition and the management of the various diseases of connective tissue—the rheumatic diseases.

"Internal Medicine — Selected Subjects" will be the material discussed at the sixth course which will be held at the Henry Ford Hospital, Detroit, Michigan on January 25 through the 29th, 1960. Selected current developments in the field of internal medicine will be presented to the internist in this course.

The final program will be held at Mount Sinai Hospital, New York City on February 8-12, 1960. "Recent Advances in Metabolic Diseases" will be the subject for this five-day presentation which deals with areas of substantial progress in recent years and on developments which have implications relating directly to pathogenesis, diagnosis and management of disorders of metabolism.

The College, believing that its Postgraduate Course Program should be essentially self-supporting, for the first time in the past twenty years, announces new matriculation fees—\$60.00 per week for members of the College and \$80.00 per week for non-members.

All registrations must be made through the Executive Offices of the College, 4200 Pine Street, Philadelphia 4, Pennsylvania.

## Course in Postgraduate Gastroenterology

The American College of Gastroenterology announces that its Annual Course in Postgraduate Gastroenterology will be given at The Biltmore in Los Angeles, California, on September 24, 25, 26, 1959.

There will be a clinical session at the College of Medical Evangelists and this year, in addition to individual papers, there will be several panel discussions of interest.

For further information and enrollment write to the American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

## Program Completed for OAGP And Medical Center Symposium

Details have been completed for the symposium on Medical and Surgical Problems in the Senior Citizen which will be conducted by the Oklahoma Academy of General Practice and the University of Oklahoma Medical Center, Friday, October 2, at the Skirvin Tower Hotel in Oklahoma City.

### PROGRAM

#### MORNING SESSION—Persian Room

Moderator: ROBERT A. SCHNEIDER, M.D., Associate Professor of Medicine and Psychiatry, University of Oklahoma Medical Center, Oklahoma City, Oklahoma.

#### 8:30 Registration—All Day

9:30-10:10 Prediction of Myocardial Infarction—John W. Gofman, M.D., Professor of Medical Physics, Donner Laboratory, University of California, Clinical Instructor in Medicine, University of California Medical School, Berkeley, California

10:10-10:50 Oral Control of Diabetes Mellitus — The When and Why—Leo P. Krall, M.D., Senior Staff, Joslin Clinic and New England Deaconess Hospital, Consultant, U. S. Public Health Service, Boston, Massachusetts

10:50-11:30 What Answers Have Steroids for Problems Peculiar to the Aged?—Walter L. Arons, M.D., Chief of Endocrine Clinic, Stanford University School of Medicine, Stanford, California

11:30-12:00 Questions and Panel Discussion

12:30- 2:00 Luncheon for physicians and wives—Persian Room

Chairman—Roger Reid, M.D., State President, Oklahoma Academy of General Practice, Ardmore, Oklahoma

Speaker—"People Who Live in Glass Houses Shouldn't"—Leo M. Wachtel, M.D., President-Elect, Florida Medical Association, Member, Commission on Hospitals, American Academy of General Practice, Jacksonville, Florida

#### AFTERNOON SESSION—Persian Room

Moderator: JOHN A. SCHILLING, M.D., Professor and Head, Department of Surgery, University of Oklahoma Medical Center, Oklahoma City, Oklahoma

2:30-3:10 Down-to-Earth Care of the Stroke Patient —Donald A. Covalt, M.D., Associate Director, Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center, New York, New York

3:10-3:50 Evaluation for Operability of the Older Patient—William Requarth, M.D., Clinical Assistant Professor of Surgery, Uni-

versity of Illinois College of Medicine,  
Chicago, Illinois

3:50-4:05 Recess—Coffee

4:05-4:45 Gastrointestinal Hemorrhage of the Aged  
—Bentley P. Colcock, M.D., Member of  
the Surgical Staff, Lahey Clinic, Boston,  
Massachusetts

4:45-5:15 Questions and Panel Discussion

5:45-6:45 Reception—Persian Room

The symposium is acceptable for seven hours of Category 1 Credit by the American Academy of General Practice. No fee is required for attendance at scientific sessions, luncheon or reception. All physicians and their wives are urged to attend this symposium which is made possible by a grant from and with the cooperation of Lederle Laboratories.

## Oklahoma City Clinical Society Announces Program

Highlighting the Twenty-Ninth Annual Fall Conference of the Oklahoma City Clinical Society will be the appearance of sixteen prominent guest lecturers. Features of the meeting, which will be held in the Biltmore Hotel, October 26, 27, 28, 1959, include: general assemblies, clinical pathologic conference, round-table luncheons, specialty lectures, dinner meetings and commercial exhibits. The complete program follows:

### MONDAY, OCTOBER 26, 1959

#### General Assembly Lectures

9:00 a.m.—MEDICAL THERAPY IN HYPERTENSION

Daniel W. Lewis, M.D.

9:30 a.m.—THE MANAGEMENT OF PROBLEMS RESULTING FROM DEGENERATIVE CHANGES OF THE SPINE AND HIPS IN OLDER PATIENTS

H. Relton McCarroll, M.D.

10:00 a.m.—VISIT THE EXHIBITS

10:30 a.m.—ASEPTIC MENINGITIS

Frederick C. Robbins, M.D.

11:00 a.m.—OBSTETRIC SHOCK

Roy T. Parker, M.D.

11:30 a.m.—ABDOMINAL TRAUMA

Robert M. Moore, M.D.

#### Specialty Lectures

9:30 a.m.—AN EVALUATION OF CERVICAL ATYPIAS IN HUMAN AND EXPERIMENTAL

#### CERVICAL CANCER

Wm. M. Christopherson, M.D.

9:30 a.m.—VESICAL NEOPLASM: TREATMENT AND PROGNOSIS

Gershom J. Thompson, M.D.

12:15 p.m.—LUNCHEONS—ROUND TABLE DISCUSSION

#### General Assembly Lectures

2:00 p.m.—MANAGEMENT OF PELVIC RELAXATIONS

Robert H. Barter, M.D.

2:30 p.m.—COMMON FRACTURES WHICH MAY BE MANAGED IN OFFICE PRACTICE

H. Relton McCarroll, M.D.

3:00 p.m.—VISIT THE EXHIBITS

3:30 p.m.—DEVELOPMENT OF VISION IN THE CROSSEYED CHILD

George M. Haik, M.D.

4:00 p.m.—LOW DOSAGE OBSTETRICAL RADIOGRAPHY

John A. Campbell, M.D.

4:30 p.m.—THE CAUSES OF HEMATURIA

Gershom J. Thompson, M.D.

#### Specialty Lectures

2:30 p.m.—HISTORIC BACKGROUND OF GASTRECTOMY FOR DUODENAL ULCER

Robert M. Moore, M.D.

2:30 p.m.—IMMUNIZATION AGAINST VIRUS DISEASES

Frederick C. Robbins, M.D.

7:00 p.m.—BANQUET — SPONSORED BY THE OKLAHOMA COUNTY MEDICAL SOCIETY

Guest Speaker—Mr. Chester H. Lauck ("Lum" of the Lum and Abner radio team)

Houston, Texas

### TUESDAY, OCTOBER 27, 1959

#### General Assembly Lectures

9:00 a.m.—SOME INTERESTING MASSES IN THE FLANK

Gershom J. Thompson, M.D.

9:30 a.m.—SAVING THE RECTUM

Rupert B. Turnbull, M.D.

10:00 a.m.—VISIT THE EXHIBITS

10:30 a.m.—CLINICAL PATHOLOGIC CONFERENCE to William M. Christopherson, M.D.

12:00 noon Daniel W. Lewis, M.D.

Rupert B. Turnbull, M.D.

#### Specialty Lectures

9:30 a.m.—RHINOPLASTY

Sam H. Sanders, M.D.

9:30 a.m.—THE DEVELOPMENT AND MANAGEMENT OF ACUTE RENAL FAILURE IN THE OBSTETRIC PATIENT

Roy T. Parker, M.D.

12:15 p.m.—LUNCHEONS—ROUND TABLE DISCUSSION

### General Assembly Lectures

- 2:00 p.m.—SKIN MANIFESTATIONS OF INTERNAL DISEASES  
John H. Talbott, M.D.
- 2:30 p.m.—TONSIL AND ADENOID PROBLEM  
Sam H. Sanders, M.D.
- 3:00 p.m.—VISIT THE EXHIBITS
- 3:30 p.m.—MANAGEMENT OF THE ANESTHESIA FOR TONSILECTOMY AND ADENOID-ECTOMY  
M. Digby Leigh, M.D.
- 4:00 p.m.—NEWER RESPIRATORY VIRUSES  
Frederick C. Robbins, M.D.
- 4:30 p.m.—CLINICAL APPLICATIONS OF CINERADIOGRAPHY  
John A. Campbell, M.D.

### Specialty Lectures

- 2:30 p.m.—STAPHYLOCOCCAL INFECTIONS IN THE HOSPITAL PATIENT  
Rupert B. Turnbull, M.D.
- 2:30 p.m.—THE MANAGEMENT OF CONGENITAL DISLOCATION OF THE HIP IN INFANCY AND YOUNG CHILDREN  
H. Relton McCarroll, M.D.
- 6:30 p.m.—SOCIAL HOUR—SPECIALTY GROUP DINNERS

## WEDNESDAY, OCTOBER 28, 1959

### General Assembly Lectures

- 9:00 a.m.—GOUT AND BLOOD DYSCRASIAS  
John H. Talbott, M.D.
- 9:30 a.m.—PRESENT THOUGHTS ON GLAUCOMA OF INTEREST TO THE GENERAL PHYSICIAN  
George M. Haik, M.D.
- 10:00 a.m.—VISIT THE EXHIBITS
- 10:30 a.m.—CURRENT CONCEPTS OF OVARIAN TUMORS  
Robert H. Barter, M.D.
- 11:00 a.m.—THE TREATMENT OF FUNGOUS DISEASES WITH GRISEOFULVIN  
J. Walter Wilson, M.D.
- 11:30 a.m.—IRREGULAR, EXCESSIVE AND PROLONGED BLEEDING  
Roy T. Parker, M.D.

### Specialty Lectures

- 9:30 a.m.—TWILIGHT ZONES IN CARDIOLOGY  
Daniel W. Lewis, M.D.
- 9:30 a.m.—THE DELUSION OF PARASITOSIS  
J. Walter Wilson, M.D.
- 12:15 p.m.—LUNCHEONS—ROUND TABLE DISCUSSION

### General Assembly Lectures

- 2:00 p.m.—A PROGRAM FOR THE MASS DETECTION OF ASYMPTOMATIC CERVICAL CANCER  
Wm. M. Christopherson, M.D.

### 2:30 p.m.—INTESTINAL OBSTRUCTION

Robert M. Moore, M.D.

### 3:00 p.m.—VISIT THE EXHIBITS

### 3:30 p.m.—SURGICAL SKIN PLANNING FOR ACNE SCARS

J. Walter Wilson, M.D.

### 4:00 p.m.—HIDDEN COMPLICATIONS FOLLOWING ANTIBIOTIC THERAPY AND MIDDLE EAR DISEASE

Sam H. Sanders, M.D.

### 4:30 p.m.—MANAGEMENT OF EMERGENCIES

M. Digby Leigh, M.D.

### Specialty Lectures

### 2:30 p.m.—GENERAL PROBLEMS OF GOUT AND GOUTY ARTHRITIS

John H. Talbott, M.D.

### 2:30 p.m.—CLOSURE OF THE INCOMPETENT CERVIX DURING PREGNANCY

Robert H. Barter, M.D.

### 7:00 p.m.—ANNUAL DINNER DANCE—SPONSORED BY THE OKLAHOMA CITY CHAMBER OF COMMERCE

Persian Room—Skirvin Tower Hotel

Registration fee for the Conference which is acceptable for 18 hours credit (Category 1) by the American Academy of General Practice, is \$20.00 which includes all features.

## AMA Disavows Implied Endorsement

The American Medical Association has recorded an official protest with the Federal Trade Commission against a recent advertisement of the Vitasafe Corporation, a New York City mail-order vitamin house.

The Vitasafe ad, currently appearing in newspapers and magazines, features a premium give-away offering "The Official AMA Book of Health" plus a 30-day supply of "High-Potency capsules." The "Book of Health" which is currently being offered is actually a collection of articles from Today's Health, the consumer magazine of the AMA.

According to Ernest B. Howard, M.D., AMA assistant executive vice-president, "In our opinion the Vitasafe Corporation has attempted to imply in this advertisement the endorsement of the AMA of one of their products. The association has not approved this advertisement copy nor has it at any time approved or endorsed in any way the product or products of this organization."



# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER POSTGRADUATE PROGRAM\* Individual Postgraduate Courses

BASIC ELECTROCARDIOGRAPHY—February 29 through March 5.

OPHTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 3 and 4.

OBSTETRICS-GYNECOLOGY SYMPOSIUM—March 5.

ADRENAL STEROIDS—March 24, 25, and 26. (Third Oklahoma Colloquy on advances in Medicine.)

ORTHOPEDIC SYMPOSIUM—April 22 and 23 (this date is tentative).

CARCINOMA OF THE SKIN—May 6 and 7. (Sixth Annual Combined Surgery, Radiology, Pathology Symposium.)

OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—Date to be determined.

## SERIAL POSTGRADUATE COURSE Postgraduate Division Oklahoma City, Oklahoma 1959-1960

Wednesday Short Courses

3:30 to 8:30 p.m.

Sept. 9 Renal Diseases  
Guest Lecturer: Maurice B. Strauss, M.D.  
Boston, Massachusetts

Oct. 14 Endocrine Disorders

Nov. 11 Surgery

Dec. 9 Renal Diseases in Childhood

Jan. 13 Carl Puckett Memorial Lecture and Infectious Diseases Symposium

Mar. 9 C. B. Taylor Lectureship and Urology Symposium—Guest Lecturer to be announced

Apr. 13 Anesthesia for the Part-time Anesthetist

May 11 Neurological Diseases in Childhood

June 8 Surgery

\*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

## OKLAHOMA ACADEMY OF GENERAL PRACTICE SYMPOSIUM October 2, 1959 Oklahoma City Skirvin Hotel

The Oklahoma Academy of General Practice, the University of Oklahoma Medical Center and Lederle Laboratories will present a Symposium on "Medical and Surgical Problems in the Senior Citizen," to be

held October 2, 1959 in the Skirvin Hotel, Oklahoma City. Further information may be obtained by writing to Nolen Armstrong, M.D., President, Oklahoma City District, A.A.G.P., 2925 N.W. 50th, Oklahoma City, Oklahoma.

## 6th ANNUAL CANCER SYMPOSIUM December 5, 1959 Oklahoma City Skirvin Hotel

The 6th Annual Cancer Symposium, American Cancer Society, Oklahoma Division, will be held at the Skirvin Hotel, December 5, 1959. Subject of the meeting will be "Cancer of the Breast."

## THE UNIVERSITY OF TEXAS POSTGRADUATE SCHOOL OF MEDICINE Course in Cardiology December 7-11, 1959 Houston, Texas Texas Medical Center

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959 will be Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London). The guest lecturer from London will present a course in cardiology at the Texas Medical Center December 7-11.

For further information write to Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

## 24th Annual Congress INTERNATIONAL COLLEGE OF SURGEONS September 13-17, 1959 Chicago

The 24th Annual Congress of the North American Federation, International College of Surgeons, will be held in Chicago, September 13-17. The federation is composed of the United States, Canadian, Mexican, and Central American Sections. For information, write to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

## INTERNATIONAL COLLEGE OF SURGEONS November 16, 17, 18, 1959 Hot Springs, Virginia

The Mid-Atlantic Meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia on November 16, 17, 18, 1959. For further details contact: E. G. Gill, M.D., State Regent, International College of Surgeons, 711 South Jefferson Street, Roanoke, Virginia.

13th ANNUAL SOUTHWEST REGIONAL  
CANCER CONFERENCE

September 20, 1959

Fort Worth, Texas

The Fort Worth Academy of Medicine will present the 13th Annual Southwest Regional Cancer Conference on September 20, 1959, under the sponsorship of the Tarrant County Medical Society and the Tarrant County Unit, American Cancer Society. Further information may be obtained from the Tarrant County Medical Society, Fort Worth, Texas.

AMERICAN HEART ASSOCIATION

32nd Annual Scientific Sessions

Trade and Convention Center

October 23-25, 1959

Philadelphia, Pennsylvania

The 32nd Annual Scientific Sessions of the American Heart Association will be held at the Trade and Convention Center in Philadelphia, October 23-25, 1959. Forms for registering and for reserving accommodations are now available from the Association, 44 East 23rd Street, New York 10, New York.

44th SCIENTIFIC ASSEMBLY

Interstate Postgraduate Medical Association

November 2-5, 1959

Palmer House

Chicago, Illinois

The 44th Scientific Assembly of the Interstate Postgraduate Medical Association will be held in the Palmer House, Chicago, Illinois, November 2-5, 1959. Advance registration fee of \$10.00 should be mailed to Erwin R. Schmidt, M.D., Box 1109, Madison 1, Wisconsin. Hotel reservations should be directed to the Palmer House, Chicago.

AMERICAN COLLEGE OF ALLERGISTS

Graduate Instructional Course and Annual Congress

February 28-March 4, 1960

The Americana Hotel

Bal Harbor

Miami Beach, Florida

The American College of Allergists will hold a Graduate Instructional Course and Annual Congress February 28 to March 4, 1960 at the Americana Hotel, Bal Harbor, Miami Beach, Florida. For further information, contact John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

## Have You Heard?

HARRIS D. RILEY, JR., M.D., Department of Pediatrics, University of Oklahoma School of Medicine, will be one of the speakers for the Twenty-Fourth Piedmont Graduate Clinical Assembly, to be held in September at Clemson, South Carolina.

HERVEY A. FOERSTER, M.D., Oklahoma City, and E. T. COOK, JR., M.D., Anadarko, spent two weeks in July at Fort Hood, Texas, taking training at the 44th Evacuation Hospital. Doctor Foerster is a Colonel and Doctor Cook is a Lieutenant Colonel in the Medical Corps, USAR.

BILL WOODRUFF, M.D., a 1958 graduate of the University of Oklahoma School of Medicine, has established his practice in Hugo. He will be associated with the Reed Wolfe Clinic.

EDWARD D. GREENBERGER, M.D., McAlister physician, attended the Ninth International Congress of Radiology in Munich, Germany, July 23-30.

DAYTON ROYSE, M.D., who completed his internship at St. Anthony's Hospital in Oklahoma City in July, has joined the staff of the Weatherford hospital.

JAMES A. WEBB, M.D., Chief resident in general surgery at the University Hospital in Oklahoma City for the past three years, has recently opened offices in the Community Building in Ponca City.

NORMAN A. COTNER, M.D., established his practice in Grove this summer. Doctor Cotner graduated from the University of Oklahoma School of Medicine in 1958.

## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

**MEDICAL PROFESSIONAL LIABILITY**—On April 7, 1958, a \$97,892 judgment was rendered by a jury of the Fulton Superior Court, Atlanta, against a neurosurgeon. The plaintiff alleged that his twenty-nine year old wife had been totally disabled from brain operations performed by the defendant in 1952. He asked for damages for loss of his wife's services. The defendant had operated on the plaintiff's wife for alleviation of epilepsy. The plaintiff contended that the operation should not have been performed and that after the operation the defendant declined to visit his wife at home for several weeks to render treatment. The neurosurgeon contended that the epilepsy was operable; that the operations were properly performed; that the plaintiff's wife's disability resulted from multiple sclerosis; and that he did not make house calls. Both sides presented medical testimony. The defendant has indicated that the judgment will be appealed.

*Railey v. Walker*, Fulton Superior Court, Atlanta, Georgia, April 7, 1958

**ABORTION**—The Supreme Court of North Carolina upheld the conviction of a physician for attempting to produce an abortion.

*State v. Lee*, 103 S.E. 2d 295 (N.C., April 30, 1958)

**DEGREE OF CARE REQUIRED OF A SPECIALIST**—The plaintiff sought to recover damages for personal injuries alleged to have resulted from the negligence of a specialist in obstetrics stemming from his failure to correctly diagnose and treat the plaintiff for an alleged pregnancy. Upon the basis of an examination and a "frog test," the defendant informed plaintiff that

she was not pregnant. Plaintiff subsequently suffered a miscarriage. The Florida District Court of Appeal upheld a summary judgment in favor of the defendant stating that the plaintiff had not made a *prima facie* showing of negligence. The Court also held that: "There is no fixed criterion by which to mark the dividing line between the degree of care that must be exercised by those who engage as specialists in the several branches or fields of medicine as compared to the general practitioners. Neither insures the correctness of his diagnosis. Generally, it is the duty of each to apply to the diagnosis and treatment of his patient the skill, means and methods that are recognized as necessary to be followed in the particular case according to the standards of those who are qualified by training and experience to perform similar services in the community."

*Grovella v. Cochrane*, 102 So. 2d 307 (Fla., April 22, 1958)

**TAX DECISION**—In the taxable year 1956 the plaintiff physician was a participating graduate fellow in a training program in psychiatry at the Western State Psychiatric Institute and Clinic in Pittsburgh, receiving a stipend of about \$3,400 from the University of Pittsburgh. The U.S. District Court held that the stipend received was a fellowship grant within the meaning of 1954 CODE Sec. 117, and was excludable from gross income.

*Wrobleski v. Bingler*, U.S. District Court, West Dist. Pa.; Civil Action No. 16106; May 19, 1958

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



# Organization News

## Doctor Donahue Resigns Mental Health Post

Hayden H. Donahue, M.D., Director of the Oklahoma Department of Mental Health for the past seven years, announced his resignation on August 4, when he wrote members of the Mental Health Board of his plans to seek a residency in psychiatry, do mental health research and complete the writing of a book. His resignation, which may actually turn into a year's leave of absence, was a shocking surprise to state government officials as well as to the medical profession.

It has been recently reported that Doctor Donahue has accepted the position of Assistant Director, Arkansas State Hospital, Little Rock.

In his letter to the Board, Doctor Donahue said:

"Although from time to time during my professional career it has been necessary for me to write a letter that I disliked writing, I find that this letter is the most difficult that I have ever had to compose.

"During the six years and seven months that I have served as mental health director in Oklahoma, I have had the pleasure of working under twelve citizens who have made up this state's mental health boards.

"Throughout my career it has always been my good fortune to have had the pleasure of working for outstanding people, but I know of no group that I have been able to work closer to, or depend more completely on, than you who now compose our department's guiding force.

"It is because of the foregoing and my deep love and respect for all of you that I so greatly regret having to tender to you my official resignation.

### Decision Explained

"My decision to resign from my post is a decision that has not been made lightly; for any decision that I might make will of necessity, to some degree, affect our patients, our program and our personnel. Because I

recognize the seriousness of these factors, I have not only spent a number of months thinking this problem out, but have sought the advice and counsel of many of my friends before reaching my final decision.

"For over 17 years I have devoted myself exclusively to the task of attempting to bring better mental health programs to this nation's mentally ill and mentally retarded, and I am humbly grateful that I have been allowed to play a small part in the development of this new era.

"Now I am tired; I sincerely desire to spend more time with my family, with my studies and in the actual treatment of patients.

### Work to Continue

"Undoubtedly I will return to the type of work that I am now doing; however, I intend to spend at least the next 12 months in improving my treatment techniques, working on some research and attempting to finish a book that I have been working on for many years.

"Naturally I intend to discuss this matter at some length at our presently scheduled September board meeting; however, I sincerely hope that you will consider this matter during the interim, for, now that I have made this difficult decision, I would naturally like to accomplish my purpose as soon as I can feasibly do so."

Under Doctor Donahue's direction, Oklahoma's mental health hospitals have increased their patient releases in ratio to admittances. The Oklahoma mental health system has brought national acclaim to the state as being a leader in the field.

### No Politics Involved

During interviews following his resignation, the physician stressed that neither politics nor his relationship with the state legislature had influenced his decision to resign. This year's legislature gave a \$2 million increase to operational funds for the mental hospital system and appropri-

ated \$1 million for a new hospital for the mentally retarded.

#### **Governor Issues Proclamation**

Governor J. Howard Edmondson took cognizance of Doctor Donahue's contributions when he issued a proclamation stating:

" . . . very occasionally there emerges from the ranks of those officials whose destiny it is to direct the complex functions of state government, one whose qualities of leadership, devotion to duty and knowledge of his field, make him as outstanding in relation to men of more common clay as the brightest star in a celestial galaxy.

"Primarily under the direction of Doctor Hayden H. Donahue, Oklahoma mental hospitals and schools for the retarded have risen from institutions regarded as 'snake pits' in the not too distant past, to a position reflecting dignity, pride and national pre-eminence."

#### **Testimonial Dinner Planned**

The proclamation declared September 22 as Donahue Appreciation Day and plans for a testimonial dinner have been made for that date by Robert J. Willoughby, Deputy Director of the Department of Mental Health. Mr. Willoughby reported that over 1,000 tickets will be sold, on a "first come, first served" basis, for the affair scheduled for 6:30 p.m., at Beverly's Country Club, NE 52nd and Santa Fe, Oklahoma City.

Governor Edmondson will be the principal speaker and George Guthrey, M.D., will serve as Master of Ceremonies. Tickets may be obtained at \$3.00 each by sending a check to Box 3095, Oklahoma City.

#### **Association Worker**

The Oklahoma State Medical Association will also suffer a loss when Doctor Donahue leaves the state for further specialty training. For the past year and one half, he has done yeoman's service for his profession in serving as Chairman of the OSMA Committee on Aging. In the same field, he is currently a member of the President's Committee for the White House Conference on Aging which is scheduled for January, 1961.

In June, 1959, he and other Oklahoma physicians met with Oklahoma's congressional delegation in Washington to voice opposition to the Forand Bill. He has maintained continuous contact with Oklahoma's lawmakers in an effort to sell them on the merits of a free enterprise health care system.

#### **SW States to Host Dallas AMA Meeting**

Plans are being formulated by the state medical societies of Oklahoma, Texas, Arkansas, New Mexico, Arizona and Louisiana to roll out a southwestern welcome mat to AMA officials, delegates and officers of other state societies who attend the AMA Clinical Session scheduled for Dallas, December 1, 2 and 3. The gesture follows a precedent set by other regions in which AMA meetings have been held.

The six host states plan to maintain a "Southwestern Suite" daily throughout the meeting and arrangements have been made to utilize the Skyway Suite of the Adolphus Hotel for this purpose. Invited guests will find the suite, which is located in the AMA headquarters hotel, open for refreshments and buffet lunch between 11:30 a.m. and 2:00 p.m. each day.

Physician representatives of the host states will be on hand to welcome the guests, with Texas being responsible for December 1, Arizona, Arkansas and Louisiana for December 2, and Oklahoma and New Mexico for December 3. It is anticipated that several hundred physicians will attend the affair each day and enjoy the buffet featuring "typical" foods of the southwest. Also, some of the states will distribute inexpensive favors depicting the culture or economy of their areas.

Oklahoma's participation in the event was approved by the Council in August, and the necessary funds were appropriated. Costs of the affair will be shared by participating states based upon the number of Delegates each has to the AMA. The Delegates and Alternate Delegates from Oklahoma will serve as the planning committee to develop the details of Oklahoma's contributions.



# New Committee Structure Announced

President Alfred T. Baker, M.D., has released information on a unique committee structure which will be tested during his term of office, and has named 134 physicians who have agreed to serve in the various organizational slots provided by the plan. The reorganization plan is a small-scale reproduction of the new committee structure of the American Medical Association, and its recent adoption represents a twofold effort to dovetail OSMA activities into the national pattern and, at the same time, initiate much needed streamlining and efficiency in handling the ever-increasing projects and problems of the state organization.

The transition to the new structure actually began prior to the 1959 annual meeting of the association, when Doctor Baker and out-going President, E. C. Mohler, M.D., devised and developed the details of the evolutionary step.

Under the new setup, the chain of command of the OSMA will pass successively from the House of Delegates to the Council, to the President and his Executive Committee, to five newly-created special Councils, and finally to the committees themselves. According to Doctor Baker, the main change that has been made is to group the multitude of committees under an overlay of the five Councils, which are designated as Public Policy, Insurance, Socio-Economic Activities, Professional Education and Public Health. The purpose of creating another step in the conduct of association activities is to relieve the President from being singularly responsible for the coordination and consistency of some twenty to forty committees which are thought to be necessary for organized medicine to keep abreast of its internal and external obligations.

In explanation, Doctor Baker cited the new Council on Socio-Economics Activities as a case in point. Gathered under the direction of this Council will be all committees dealing with governmental, labor, industrial and voluntary health programs where a third party has been introduced into the doctor-patient relationship. He pointed out that all levels of organized medicine have been guilty of inconsistencies on such matters and that he is hopeful that the

Council can guide the committee efforts along consistent philosophical lines.

## How It Works

In contrast to the old system where the President or the policy-making bodies assigned problems or projects to a committee and the President was left with almost sole responsibility as liaison officer, the new system will allow assignments to be referred to the new Councils for further referral to an appropriate committee. The members of the Council, in turn, will serve in a supervisory capacity and periodically report to the President on all committee activities under their direction. The President will also give the Councils the authority to initiate programs of their own.

In order to further strengthen effective liaison, the chairman of each association committee will serve as a member of the appropriate Council. Some of the Councils have been further bolstered by the addition of other physicians who were felt to have particular experience or abilities.

At annual meeting time, it is anticipated that the Council chairmen will report to the governing bodies on the overall accomplishments during the preceding year and the committee chairmen will also give more detailed reports on their specific endeavors.

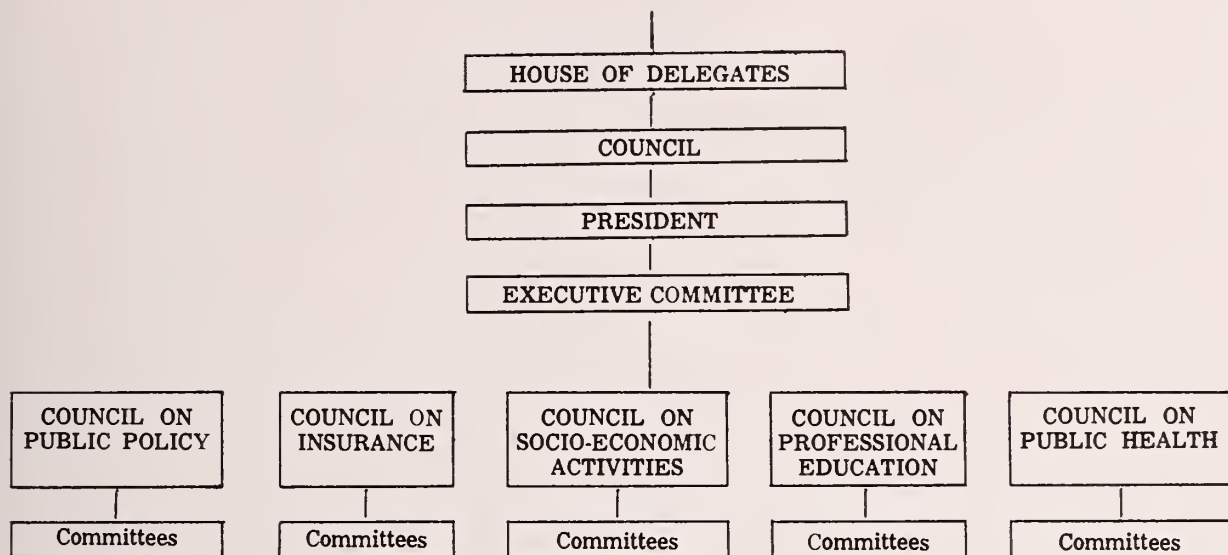
## If It Works

If experience with the one year trial-plan proves its effectiveness, the governing bodies of the association will consider appropriate amendments to the constitution and by-laws which will establish the system on a permanent basis. Among the principle changes thought to be necessary would be the re-designation of the present Council to the Board of Trustees. This change would prevent its confusion with the new "Councils." Another change mentioned by Doctor Baker as being worthy of consideration would be the re-designation of the present Executive Committee to the Executive Council and making provision for its membership to be comprised, at least in part, of the Chairmen of the other Councils.

Doctor Baker plans to call a briefing meeting of all Council chairmen early in the working year. It is hoped that this meeting will provide an effective kickoff for association activities during this administration.



## ORGANIZATIONAL STRUCTURE



## COUNCILS AND COMMITTEES—PERSONNEL ASSIGNMENTS

### COUNCIL ON PUBLIC POLICY

James W. Kelley, M.D., Chairman  
Tulsa

Marshall O. Hart, M.D. Tulsa	John E. McDonald, M.D. Tulsa
E. C. Mohler, M.D. Ponca City	J. R. Stacy, M.D. Oklahoma City
Charles E. Green, M.D. Lawton	M. Haskell Newman, M.D. Shattuck

### COUNCIL ON INSURANCE

Bruce R. Hinson, M.D., Chairman  
Enid

Ralph A. Smith, M.D. Oklahoma City	W. R. Cheatwood, M.D. Duncan
E. C. Yearly, M.D. Ponca City	William S. Dandridge, M.D. Muskogee
Simon Pollack, M.D. Tulsa	

### COMMITTEES

#### State Legislative:

James W. Kelley, M.D., Chairman, Tulsa  
James Harold Tisdal, M.D., Clinton  
Orange M. Welborn, M.D., Ada  
R. Q. Goodwin, M.D., Oklahoma City  
E. A. McGrew, M.D., Beaver  
L. H. Ritzhaupt, M.D., Guthrie  
William N. Weaver, M.D., Muskogee

#### Federal Legislative:

J. R. Stacy, M.D., Chairman, Oklahoma City  
Worth N. Gross, M.D., Tulsa  
Tom S. Gafford, M.D., Muskogee  
J. Hoyle Carlock, M.D., Ardmore  
Clinton Gallaher, M.D., Shawnee  
William N. Harsha, M.D., Oklahoma City  
Paul B. Lingenfelter, M.D., Clinton

#### Medico-Legal Relations:

Marshall O. Hart, M.D., Chairman, Tulsa  
William T. Gill, M.D., Ada  
William N. Harsha, M.D., Oklahoma City

#### Grievance:

John E. McDonald, M.D., Chairman, Tulsa  
John F. Burton, M.D., Oklahoma City  
Bruce R. Hinson, M.D., Enid  
E. C. Mohler, M.D., Ponca City  
R. Q. Goodwin, M.D., Oklahoma City

### COMMITTEES

#### Professional Liability:

Ralph A. Smith, M.D., Chairman, Oklahoma City  
C. E. Woodard, M.D., Drumright  
C. A. Traverse, M.D., Alva  
Ralph A. McGill, M.D., Tulsa  
E. C. Yearly, M.D., Ponca City  
Port Johnson, M.D., Muskogee  
Curtis Berry, M.D., Norman  
John M. Carson, M.D., Shawnee  
W. A. Matthey, M.D., Lawton

#### Group Insurance:

E. C. Yearly, M.D., Chairman, Ponca City  
C. B. Dawson, M.D., Oklahoma City  
Simon Pollack, M.D., Tulsa

### COUNCIL ON SOCIO-ECONOMIC ACTIVITIES

Mark R. Johnson, M.D., Chairman  
Oklahoma City

Joe L. Duer, M.D. Woodward	J. Hobson Veazey, M.D. Ardmore
C. M. O'Leary, M.D. Oklahoma City	A. R. Sugg, M.D. Ada
Henry T. Russell, M.D. Enid	E. E. Beechwood, M.D. Bartlesville
H. A. Ruprecht, M.D. Tulsa	

## COMMITTEES

### Public Welfare:

Mark R. Johnson, M.D., Chairman, Oklahoma City  
Thomas E. Rhea, M.D., Idabel  
George H. Garrison, M.D., Oklahoma City  
Richard Burgtorf, M.D., Shattuck  
E. M. Gullatt, M.D., Ada  
E. H. Shuller, M.D., McAlester

### Labor and Miscellaneous Third Party Programs:

Joe L. Duer, M.D., Chairman, Woodward  
R. L. Winters, M.D., Poteau  
H. A. Ruprecht, M.D., Tulsa  
Howard B. Shorbe, M.D., Oklahoma City  
Wayne A. Starkey, M.D., Altus

### Industrial Health:

C. M. O'Leary, M.D., Chairman, Oklahoma City  
Kieffer Davis, M.D., Bartlesville  
David Ramsay, M.D., Ada  
Wilkie D. Hoover, M.D., Tulsa  
Tom H. Mitchell, M.D., Tulsa  
William Best Thompson, M.D., Oklahoma City  
Earl D. McBride, M.D., Oklahoma City  
J. J. Maril, M.D., Oklahoma City  
J. R. Stacy, M.D., Oklahoma City  
Nevin W. Dodd, M.D., Tulsa  
N. F. V. Barkett, M.D., Oklahoma City

### Prepaid Medical Care:

Henry T. Russell, M.D., Chairman, Enid  
R. B. Howard, M.D., Oklahoma City  
Tullos O. Coston, M.D., Oklahoma City  
Frank J. Nelson, M.D., Tulsa  
Vernon M. Lockard, M.D., Bartlesville  
Charles S. Graybill, M.D., Lawton  
Carl Lindstrom, M.D., Tulsa  
R. F. Loughmiller, M.D., Oklahoma City  
Kenneth L. Wright, M.D., Ardmore  
Charles E. Wilbanks, M.D., Tulsa  
R. G. Obermiller, M.D., Woodward  
Donald Olson, M.D., Vinita

## COUNCIL ON PROFESSIONAL EDUCATION

R. R. Hannas, Jr., M.D., Chairman  
Sentinel

Henry G. Bennett, Jr., Henry H. Turner, M.D.  
M.D., Oklahoma City Oklahoma City

## COMMITTEES

### Medical School Liaison:

Henry G. Bennett, Jr., M.D., Chairman, Oklahoma City  
R. R. Hannas, M.D., Sentinel  
James W. Kelley, M.D., Tulsa  
J. H. Tisdal, M.D., Clinton  
Carl H. Bailey, M.D., Stroud  
Harry Wilkins, M.D., Oklahoma City  
Cleve Beller, M.D., Okmulgee  
W. R. Cheatwood, M.D., Duncan

### Post Graduate Education:

Henry H. Turner, M.D., Chairman, Oklahoma City  
Irwin H. Brown, M.D., Oklahoma City  
Thornton Kell, M.D., Ardmore  
Robert C. Mayfield, M.D., Norman  
W. A. Matthey, M.D., Lawton  
John A. McIntyre, M.D., Enid

J. M. Bush, M.D., Ponca City  
John Rafter, M.D., Muskogee  
Robert D. Hargrove, M.D., Pawnee  
L. N. Dakil, M.D., McAlester  
Clarence P. Taylor, M.D., Ada  
James W. Kelley, M.D., Tulsa  
Lynn C. Barnes, M.D., Nowata

## COUNCIL ON PUBLIC HEALTH

George H. Garrison, M.D., Chairman  
Oklahoma City

H. H. Donahue, M.D. G. R. Russell, M.D.  
Oklahoma City Tulsa  
Robert D. Shuttee, M.D. George H. Guthrey, M.D.  
Enid Oklahoma City  
Earl D. McBride, M.D. Joe M. Parker, M.D.  
Oklahoma City Oklahoma City  
William H. Reiff, M.D.  
Oklahoma City

## COMMITTEES

### Aging:

H. H. Donahue, M.D., Chairman, Oklahoma City  
Samuel C. Shepard, M.D., Tulsa  
C. E. Bates, M.D., Sulphur  
J. R. Stacy, M.D., Oklahoma City  
Leonard P. Eliel, M.D., Oklahoma City  
Mr. Paul Snelson, Oklahoma City  
John W. DeVore, M.D., Oklahoma City  
Shelby Gamble, M.D., Okmulgee  
Herbert Kent, M.D., Oklahoma City

### School Health:

Robert D. Shuttee, M.D., Chairman, Enid

### Rehabilitation:

Earl D. McBride, M.D., Chairman, Oklahoma City

### Perinatal Problems and Maternal Mortality:

G. R. Russell, M.D., Chairman, Tulsa  
John W. Shackelford, M.D., Oklahoma City  
Harris D. Riley, Jr., M.D., Oklahoma City  
Thomas C. Points, M.D., Oklahoma City  
Houston F. Mount, M.D., Tulsa  
M. Wilson Mahone, M.D., Hobart  
Kenneth E. Godfrey, M.D., Okeene

### Mental Health:

George H. Guthrey, M.D., Chairman, Oklahoma City  
Wayne Johnson Boyd, M.D., Fort Supply  
Frank Adelman, M.D., Enid  
H. H. Donahue, M.D., Oklahoma City  
W. C. McCurdy, M.D., Purcell  
S. C. Shepard, M.D., Tulsa  
Ray H. Lindsey, M.D., Pauls Valley

### Cancer:

Joe M. Parker, M.D., Chairman, Oklahoma City  
Ralph A. McGill, M.D., Tulsa  
A. H. Bell, M.D., Oklahoma City  
Horace E. Gill, M.D., Okmulgee  
Phillips R. Fife, M.D., Guthrie  
William E. Eastland, M.D., Oklahoma City  
Lucien M. Pascucci, M.D., Tulsa

### Civil Defense:

William H. Reiff, M.D., Chairman, Oklahoma City  
Gifford H. Henry, M.D., Tulsa

# OFFICERS AND COUNCILORS

## of the

# OKLAHOMA STATE MEDICAL ASSOCIATION

## 1959-60

PRESIDENT—A. T. Baker, M.D., Durant  
 PRESIDENT ELECT—Walter E. Brown, M.D., Tulsa  
 VICE PRESIDENT—Charles E. Green, M.D., Lawton  
 PAST PRESIDENT—E. C. Mohler, M.D., Ponca City  
 PAST PRESIDENT—John Flack Burton, M.D., Oklahoma City  
 SECRETARY-TREASURER—Johnny A. Blue, M.D., Oklahoma City  
 DELEGATE TO THE A.M.A.—Wilkie D. Hoover, M.D., Tulsa  
 ALTERNATE DELEGATE TO THE A.M.A.—Joe L. Duer, M.D., Woodward  
 DELEGATE TO THE A.M.A.—Malcom E. Phelps, M.D., El Reno  
 ALTERNATE DELEGATE TO THE A.M.A.—R. Q. Goodwin, M.D., Oklahoma City  
 SPEAKER OF THE HOUSE OF DELEGATES—Clinton Gallaher, M.D., Shawnee  
 VICE SPEAKER OF THE HOUSE OF DELEGATES—J. Hoyle Carlock, M.D., Ardmore  
 EDITOR-IN-CHIEF OF THE JOURNAL—Ben H. Nicholson, M.D., Oklahoma City

### COUNCIL

#### DISTRICT #1

J. E. Highland, M.D.  
 Miami  
 L. B. Word, M.D.  
 Bartlesville

#### DISTRICT #2

Powell Fry, M.D.  
 Stillwater  
 J. W. Murphree, M.D.  
 Ponca City

#### DISTRICT #3

C. M. Hodgson, M.D.  
 Kingfisher  
 George T. Ross, M.D.  
 Enid

#### DISTRICT #4

Walter H. Dersch, M.D.  
 Shattuck  
 John X. Blender, M.D.  
 Cherokee

#### DISTRICT #5

Ross Deputy, M.D.  
 Clinton  
 C. Riley Strong, M.D.  
 El Reno

#### DISTRICT #6

P. E. Russo, M.D.  
 Oklahoma City  
 E. E. Shircliff, M.D.  
 Oklahoma City

#### DISTRICT #7

C. C. Young, M.D.  
 Shawnee  
 E. K. Norfleet, M.D.  
 Bristow

#### DISTRICT #8

Wendell L. Smith, M.D.  
 Tulsa  
 Marshall O. Hart, M.D.  
 Tulsa

#### DISTRICT #9

R. L. Currie, M.D.  
 Sallisaw  
 Burdge F. Green, M.D.  
 Stilwell

#### DISTRICT #10

Paul Kernek, M.D.  
 Holdenville  
 C. E. Lively, M.D.  
 McAlester

#### DISTRICT #11

Thomas E. Rhea, M.D.  
 Idabel  
 W. A. Hyde, M.D.  
 Durant

#### DISTRICT #12

William T. Gill, M.D.  
 Ada  
 M. E. Robberson, M.D.  
 Wynnewood

#### DISTRICT #13

John B. Miles, M.D.  
 Anadarko  
 W. R. Cheatwood, M.D.  
 Duncan

#### DISTRICT #14

J. B. Hollis, M.D.  
 Mangum  
 R. R. Hannas, M.D.  
 Sentinel





### **New Srigley Clinic Opened in Altus**

The Srigley Clinic, 1111 East Pecan, Altus, was formally opened in July by R. S. Srigley, M.D. Built of concrete, steel and stone, the new modern structure contains 1,850 square feet of floor space.

Exterior of the building, which is located directly across from the Jackson County Memorial Hospital, is faced with stone. A fountain and stone wall decorate the front of the building.

Included in the floor plan of the new clinic are complete laboratory, x-ray, consultation room, surgery and physiotherapy room, two examining rooms, nurse's station, business office and waiting room. The clinic was designed so that it may be expanded in any of three directions on the 150 foot lot.

### **Phelps to Tour Far East Hospitals**

Malcom E. Phelps, M.D., El Reno, has been appointed as a Consultant in General Practice to the Surgeon General and will leave November 2 for a tour of military medical installations in the Far East. During his tour, he will visit installations in Hawaii, Japan, Okinawa, Korea, Hong Kong and other points throughout the Far East.

As a past-president of the American Academy of General Practice, he has served in an advisory capacity to the Surgeon General's Office on previous occasions. The proposed overseas tour will be publicized widely at the medical facilities to be visited

since Doctor Phelps and others will address the respective staffs on selected subjects of interest.

### **State Board Is Named by Governor**

Governor Edmondson recently announced the appointment of members of the State Board of Medical Examiners. Named as members of the board are:

Lillian Robinson, M.D., Enid; C. Riley Strong, M.D., El Reno; Wayne A. Starkey, M.D., Altus; C. E. Northcutt, M.D., Ponca City; W. Pat Fite, M.D., Muskogee; E. F. Lester, M.D., Oklahoma City; and Marshall O. Hart, M.D., Tulsa.

# Proceedings of the Special Session Of The House of Delegates

AUGUST 2, 1959

A special session of the House of Delegates of the Oklahoma State Medical Association was held on Sunday, August 2, 1959, at 1:00 p.m. in the auditorium of the First National Bank of Oklahoma City. The meeting was called to order by Doctor Clinton Gallaher, Speaker of the House of Delegates.

The Speaker requested those entitled to vote to be seated to the front and other members of the Association and guests to be seated to the back.

The Invocation was given by M. B. Glismann, M.D., Oklahoma City.

The Chair announced the following appointments for the session:

## Credentials Committee:

C. Riley Strong, M.D., Chairman, El Reno  
A. L. Buell, M.D., Okmulgee  
H. V. Schaff, M.D., Holdenville

## Sergeants at Arms:

Ollie McBride, M.D., Ada  
Charles E. Wilbanks, M.D., Tulsa

## Teller:

M. A. Neumann, M.D., Okarche

## Parliamentarian:

J. Hoyle Carlock, M.D., Ardmore

The Speaker called for the introduction of guests. He reported that the House of Delegates, and all who attended the meeting were the guests of Mr. John H. Miller, Vice President and Trust Officer of the First National Bank and Trust Company. Mr. Miller was introduced to the House of Delegates.

Doctor Gallaher called for announcements. There were no announcements from the floor. The Speaker paid respect to the following members who were usually present at the meetings of the House of Delegates: Doctor George H. Garrison, Oklahoma City, was unable to be present because of recent reconstructive surgery; Doctor William T. Gill, Ada, received word of the death of his mother; and Mr. Dick Graham, Executive Secretary of the OSMA, was attending the funeral of his wife's brother.

The Speaker asked the Credentials Committee Chairman, Doctor C. Riley Strong, if a quorum was present. Doctor Strong reported that a quorum was present.

As the first order of business, the Speaker announced the consideration of the membership status of Doctor H. M. "Red" McClure, formerly of Chickasha, Oklahoma, who now resides in Coral Gables, Florida. The Chair asked to recognize Doctors S. D. Revere and J. J. Swan of Chickasha; however, neither were present at the moment. Mr. Don Blair, Associate Executive Secretary of the OSMA was asked to present the proposition. Mr. Blair announced that Doctor H. M. McClure was nominated for honorary

life membership at the annual House of Delegates meeting, held in Tulsa in April, 1959. Due to a technicality, called to the attention of the House of Delegates by the Parliamentarian, it was not possible to grant this recognition because it had not been brought before the Council the preceding day. The Council was polled by mail after the annual meeting, and they unanimously recommended him for honorary life membership. This matter is now being brought back to the House of Delegates for final disposition.

Doctor Wilkie D. Hoover, Tulsa, moved that the application for honorary life membership for Doctor H. M. McClure be approved by the House of Delegates. This motion was duly seconded and carried unanimously.

The second and final item for consideration was a proposal to provide a service-type prepaid health care plan for senior citizens. At this point, Doctor Gallaher read a letter dated July 22, 1959, from Alfred T. Baker, M.D., President of the OSMA, which was mailed to the County Society Presidents and Secretaries. In this letter, Doctor Baker stated the purpose of the special meeting of the House of Delegates and urged the societies to carefully consider the proposal and to advise their delegates of the collective attitude of their respective society. He also informed the societies that any member of the Association was welcome to attend the meeting as a guest.

As a matter of further review, Doctor Gallaher read from the June, 1959 issue of the OSMA Journal, The Report on Health Insurance for Senior Citizens as presented to and approved by the House of Delegates in April, 1959, which is as follows:

"In conformance with the A.M.A. action, the OSMA Committees, already concerned with the problems of the aged, held a series of joint meetings in this regard. During these meetings, the joint group discussed a variety of alternate plans to meet the health cost problem for this age segment. Finally, the need for a cautious approach to this problem conflicted with the time element and it was decided that the proposal to this House of Delegates would be based upon certain principles rather than on the submission of a specific program.

"The group, therefore, approved the following motion which it now respectfully offers for your consideration: It is recommended:

1. That a service-type health insurance program be approved for the sixty-five and over age group.
2. That service benefits be offered to those whose income and net worth fall below approved ceilings, with \$6,000 as the suggested income ceiling.
3. That it be stipulated that the following points be taken into account in the development of such a service contract:

A. Physicians and hospitals are to be offered the best possible fees, in keeping with a saleable premium.

(Continued on Page 634)



*wherever there is inflammation, swelling, pain*

# VARIDASE®

Streptokinase-Streptodornase Lederle

## BUCCAL Tablets

conditions  
for a fast  
& comfortable  
comeback

Host reaction to injury or local infection has a catabolic and an anabolic phase. The body responds with inflammation, swelling and pain. In time, the process is reversed. VARIDASE speeds up this normal process of recovery.

By activating fibrinolytic factors VARIDASE shortens the *undesirable phase*, limits necrotic changes due to inflammatory infiltration, and initiates the constructive phase to speed total remission. Medication and body defenses can readily penetrate to the affected site;

local tissue is prepared for faster regrowth of cells.

In infection, the fibrin wall is breached while the infection-limiting effect is retained. In acute cases, response is often dramatic. In chronic cases, VARIDASE Buccal Tablets can stimulate a successful response to primary therapy previously considered inadequate or failing.

*for routine use in injury and infection  
...new simple buccal route*

VARIDASE Buccal Tablets should be retained in the buccal pouch until dissolved. For maximum absorption, patient should delay swallowing saliva.

Dosage: One tablet four times daily usually for five days.

When infection is present, VARIDASE Buccal Tablets should be given in conjunction with ACHROMYCIN® V Tetracycline with Citric Acid.

Each VARIDASE Buccal Tablet contains: 10,000 Units Streptokinase and 2,500 Units Streptodornase.

Supplied: boxes of 24 and 100 tablets.

1. Innerfield, I.: Clinical report cited with permission  
2. Clinical report cited with permission



LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY  
Pearl River, New York





**FORCE INJURY**  
severe bruises  
... swelling  
... cleared  
by fifth day<sup>2</sup>



**VARICOSE  
ULCER**  
15 years duration  
... resolved with  
VARIDASE<sup>1</sup>



**INFLAMMATORY  
DERMATOSIS**  
rapidly spreading  
rhus dermatitis  
healed within  
a week<sup>1</sup>



**INFECTED  
LACERATION**  
marked reversal  
in 3 days...  
returned  
to school...  
closure advanced<sup>1</sup>



**THROMBOPHLEBITIS**  
back on his feet  
in a week after  
recurrent episode<sup>1</sup>



**REFRACTORY  
CELLULITIS**  
normal routine  
resumed after 4 days  
of VARIDASE<sup>1</sup>



B. After allowing ninety days following the annual meeting for the development of the program, a special meeting of the House of Delegates will be called to ratify, reject or modify the proposal."

Doctor Gallaher reported that Doctor Baker had appointed a joint committee to develop a proposal for the consideration of the House of Delegates; and that the Council of the OSMA met at the Executive Office of the Association on August 1, 1959, and submitted the following recommendations to the House of Delegates:

"Doctor Charles Green moved that the Council thank the joint committee of the Blue Cross-Blue Shield Liaison Committee and the Sub-Committee on Insurance and Retirement for the work they had done."

This motion was duly seconded and carried.

"Doctor L. B. Word moved that the Council does not recommend the approval of the plan as submitted."

This motion was duly seconded and carried.

The Speaker gave the following definition of a "service-type" program: "The service-type program includes the idea that physicians participating in the program will accept the suggested fees as payment in full for services rendered, and will not solicit nor accept any additional compensation." He added that it was the moral duty of the House of Delegates to make a definite decision about this problem and that there were four options:

1. Adopt the plan as proposed by the Committee.
2. Propose certain changes for further consideration of the committee.
3. Deny approval of the committee's report.
4. Must make some definite recommendation for further consideration of a committee.

Doctor Gallaher said that the problem could not be erased by evading the issue and urged medical leadership while there may yet be time. He requested that after the presentation was made, a motion would be made prior to discussion.

The Chair recognized Alfred T. Baker, M.D., President of the OSMA; J. R. Stacy, M.D., Chairman of the Federal Legislative Committee; and H. H. Donahue, M.D., Chairman of the Joint Committee of the Blue Cross and Blue Shield Liaison Committee and the Sub-Committee on Insurance and Retirement, all of whom assisted in the presentation of the proposal.

Doctor Alfred T. Baker urged each delegate to seriously consider the proposal. In the event the proposal was rejected, he asked that they study the basis for opposition and devote more serious study to the development of a more acceptable program.

Doctor J. Raymond Stacy reported on the activities of the Federal Legislative Committee of the OSMA, which has been trying to educate and stimulate think-

ing and letter writing to the House Ways and Means Committee, before which the Forand Bill has been presented, and also to the members of the House and Senate from Oklahoma. He reviewed the provisions of the Forand Bill, which would provide free medical, surgical, dental, hospital, and nursing home care for the recipients of Social Security. He requested that each member study the Forand Bill and other similar bills which would affect the freedom of private enterprise.

Doctor H. H. Donahue reported that the draft and proposal was being brought back to the House of Delegates, as a directive of their meeting in Tulsa in April, 1959. He reported that the proposal represented the opinion of the majority of the members of the committee, and that they had reviewed many types of insurance programs: service-type, indemnity-type, the type where the individual pays a certain amount to defray certain costs, and the point system for allocation of funds to physicians. He reported that there was no set plan developed in the United States by any of the medical societies—that each plan was different.

Doctor Donahue reported that some of the problems that had to be considered in developing a proposal were:

- (1) They had to develop something that was saleable to the people over 65.
- (2) The representatives of the insurance companies informed the committee that the cost of this insurance would have to be kept in the range of \$6.00 if it were to sell.
- (3) That this proposal should be something that would at least come in some scope of being an alternate for the Forand type legislation.

It was reported by Doctor Donahue that using the \$6.00 figure as a basis, the committee tried to develop the best possible coverage for this cost; and that the suggested fees were 50% of the medicare schedule.

Doctor F. C. Wallingford, Bartlesville, moved that the House of Delegates reject the proposal submitted by the Committee. The motion was duly seconded.

Doctor Louis H. Ritzhaupt, Guthrie, made a substitute motion that the House of Delegates consider the Senior Citizens Insurance Program, step by step, beginning with Item 1, Page 1, at which time they would decide whether they wanted an indemnity type program instead of the service type. This motion failed for lack of a second.

After further discussion, the original motion made by Doctor Wallingford was voted upon and unanimously carried.

Doctor Ollie McBride, Ada, moved that no "service-type" insurance program be accepted. This motion was duly seconded and carried.

Doctor Malcom E. Phelps, El Reno, moved that the House of Delegates recommend to the President of



the Oklahoma State Medical Association that he appoint a committee to investigate an indemnity type prepaid health insurance program for citizens age sixty-five and over and report back to the House of Delegates. This motion was seconded by Doctor Ritzhaupt and carried.

Discussion was held, pro and con, concerning the feasibility of appointing a new committee to conduct this investigation of the indemnity type insurance program. It was generally agreed that the existing committee should continue to function. It was also the feeling of some of the delegates that the committee should be paid for the time spent in conducting the research for the service-type program. No further action was taken on the latter point.

Doctor H. E. Denyer, Bartlesville, made the following substitute motion: That the House of Delegates, recognizing the need for a voluntary prepaid health insurance program for the sixty-five and over age group, recommends that a committee continue to work on this program, divorcing hospital care from physician's fees and instructing the committee that only an indemnity type contract with fees no less than Medicare be considered. This motion failed to receive a second.

Doctor George T. Ross, Enid, moved that Doctor Phelp's motion be amended to the effect that the committee report back to the House of Delegates within sixty (60) days. The motion was seconded.

Doctor T. E. Rhea, Idabel (pointing out that the Council had first rejected the service-type insurance program, which was subsequently rejected by the House of Delegates), moved that the committee's proposal for an indemnity type prepaid health insurance program first be presented to the Council, and when the Council felt that a program was presented which would possibly be approved by the House of Delegates a meeting would be called. This motion was duly seconded and carried.

Doctor P. E. Russo, Oklahoma City, moved that the deliberations of the Insurance Committee shall not include any reference to hospital problems, financial or otherwise. This motion was duly seconded and carried.

After discussion concerning the various points that the delegates wished to be specifically covered in the investigation of an indemnity type insurance program:

Doctor Frank J. Nelson, Tulsa, moved that each delegate who had suggestions with reference to what they wanted in this new type insurance program, should write to Doctor Baker and make clear their suggestions for the consideration of the committee. This motion was seconded by Doctor Wilbanks and carried.

Doctor M. O. Hart, Tulsa, moved that the meeting be adjourned. The motion was seconded and the meeting adjourned at 3:30 p.m.

## **American Board of Ob-Gyn Schedules Examination**

The American Board of Obstetrics and Gynecology, Inc. has announced the next scheduled examination (Part 1), written, and review of case histories for all candidates will be held in various cities of the United States, Canada, and military centers outside the Continental United States, on Friday, January 15, 1960. Candidates must submit case reports to the office of the Secretary within thirty days of being notified of their eligibility to Part 1.

Current bulletins may be obtained by writing to Robert L. Faulkner, M.D., Executive Secretary and Treasurer, 2105 Adelbert Road, Cleveland 6, Ohio.

**For the Latest in Patient Care**

**DECEMBER 1-4**

in

**DALLAS**

**AMERICAN MEDICAL ASSOCIATION**

**13th CLINICAL MEETING**

**For Full Information Write—**

**535 North Dearborn Street  
Convention Services  
Chicago 10, Illinois**



## BLUE CROSS PERCENTAGE UTILIZATION BY COUNTY

HOSPITAL CARE USED—1958 AVERAGE COMPARED TO AVERAGE FOR FIRST SIX MONTHS OF 1959

County Name	6 mos.		County Name	6 mos.	
	1958	1959		1958	1959
Adair	122.0%	98.0%	Lincoln	108.5	115.7
Alfalfa	90.1	106.8	Logan	57.1	57.6
Atoka	92.0	106.8	Love	76.4	112.5
Beaver	100.5	83.3	McClain	89.3	97.4
Beckham	101.2	111.6	McCurtain	113.0	123.1
Blaine	115.0	98.6	McIntosh	66.4	94.0
Bryan	70.5	66.6	Major	97.8	97.5
Caddo	97.1	93.2	Marshall	93.8	54.1
Canadian	83.3	86.1	Mayes	92.6	79.4
Carter	92.3	81.2	Murray	69.1	72.9
Cherokee	113.3	91.7	Muskogee	78.4	76.7
Choctaw	106.7	121.7	Noble	98.0	103.4
Cimarron	88.7	116.6	Nowata	120.3	121.2
Cleveland	84.8	80.1	Okfuskee	91.5	83.0
Coal	126.6	103.9	Oklahoma	78.1	69.8
Comanche	89.9	102.3	Okmulgee	95.4	117.7
Cotton	91.6	85.9	Osage	102.3	125.2
Craig	98.4	131.6	Ottawa	101.8	106.4
Creek	109.9	129.4	Pawnee	109.3	111.4
Custer	104.2	82.9	Payne	93.0	87.2
Delaware	100.9	156.2	Pittsburg	103.9	103.2
Dewey	86.7	78.2	Pontotoc	101.0	103.1
Ellis	79.0	112.5	Pottawatomie	84.5	84.0
Garfield	115.0	113.6	Pushmataha	113.0	103.2
Garvin	75.0	97.8	Roger Mills	111.6	151.9
Grady	77.0	69.2	Rogers	96.4	89.1
Grant	106.4	115.2	Seminole	78.5	63.8
Greer	81.5	76.1	Sequoyah	89.7	161.6
Harmon	60.6	68.0	Stephens	97.0	90.7
Harper	90.1	108.7	Texas	118.1	105.4
Haskell	73.3	87.7	Tillman	115.4	101.2
Hughes	106.1	96.7	Tulsa	103.8	99.1
Jackson	82.6	83.1	Wagoner	97.6	75.6
Jefferson	133.5	139.7	Washington	100.5	107.7
Johnston	74.0	68.9	Washita	108.4	82.5
Kay	90.3	76.6	Woods	107.2	98.0
Kingfisher	81.9	73.0	Woodward	91.4	97.1
Kiowa	88.2	97.6			
Latimer	114.8	122.9			
LeFlore	86.9	87.1			
			Average	94.6%	97.8%

NOTE: Utilization is on a paid basis and does not include reserves, operating expenses, nor any estimated retroactive payments.

Released at the request of the Blue Cross-Blue Shield Liaison  
Committee for the Information and Education of OSMA members.

# Auxiliary News

## **Inevitable Trio**

Through the centuries it is likely that few of us have challenged the inevitability of "death and taxes." It seems likely that this duo of finality is gradually becoming a trio, joined by mental health.

In the over-all Auxiliary picture, as in most aspects of living itself, Mental Health seems intangible. It is so closely related to Public Relations, Community Service, Safety, many of our labelled projects.

Unless personally involved, how do we manifest awareness? We donate, individually and through organizations, to the National Association for Mental Health. We read an occasional good book, see a movie or play which is obviously promoting a better understanding of the true mental health picture. We have our attention called to the inadequacy of funds and care in our institutions, or to the fact that too little is being done toward rehabilitation of mental patients.

## **Fall House Cleaning**

With our imminent fall house-cleaning, we can surely devote as much time to mature consideration of the mental health of our own family. Just as we try new appliances and new cleaning methods, we can evaluate and begin constructive approaches to mental and emotional problems of each member. "Individual Responsibility for Better Community Health," is most applicable here. Beginning in our own homes, we can expand community-wise, spot-lighting Mental Health as one of our priority projects.

## **Approved Projects**

Included in priority projects approved by the Council on Mental Health of the A.M.A. are these three: 1) Youth; 2) Alcoholism; and 3) Aging.

1) All over the United States Auxiliaries are introducing two series of educational

value. "Pierre the Pelican" consists of a total of 28 pamphlets to be sent over a six-year pre-school period. Parents are issued twelve monthly bulletins during the first year. This series presents growth and emotional attitudes, needs, personality and behavior problems in the infant and child.

The rising marriage and divorce rate among teen-agers prompted the writing of "Milestones for Marriage." This series of nine letters is sent monthly to high-school seniors for discussion groups. The letters are timely and well-written, definitely aimed at the conflicts involved, not conclusively, but thought-provoking for discussion groups.

Consider these two series for P.T.A. and church study sponsorship. Work with your local Mental Health organization to introduce them, with the approval of your own county society, of course.

Additional information can be obtained from the Louisiana Association for Mental Health, 1528 Jackson Avenue, New Orleans 13, Louisiana.

2) Alcoholism education is necessary to meet a serious social problem. Perhaps in no other state is this aspect more timely than in Oklahoma. Consult your local Mental Health agency, or obtain material from our State Chairman, Mrs. George H. Guthrey, 532 N.W. 40, Oklahoma City.

3) Many auxiliaries will be asked to participate in the conferences preparatory to a White House Conference on Aging, which will be held in 1961. (Many of us are now working on material for the White House Conference on Youth to be held in 1960). We can also assist the aged in our neighborhoods, county and state institutions and nursing and rest homes. Of more than twenty-five million hours spent last year in connection with Auxiliary projects, many can be devoted to these projects for this year.

# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association, September, 1934.

## SEPTICAEMIA

L. J. Starry, M.D., Department of Surgery

Oklahoma University Medical School, Oklahoma City

Since the time of Hippocrates we have been studying the major problem of blood infections and yet the mortality rate at the present time is something over seventy per cent. This statement may explain the necessity and timeliness of a discussion at this time. Although many of the factors relative to this subject are controversial, a brief consideration of the prevalence of the condition and the results we are obtaining in its treatment, will convince the thoughtful individual that there is some need for a more thorough consideration, more definite understanding, and a crystallization of the many ideas of treatment in the hope that better results may be forthcoming.

Of the various types which have been mentioned, it is quite true that the staphylococcal infections give the worse prognosis—next the various streptococcus strains and finally the colon bacillus infections will give the best prognosis. The first usually arises from some skin lesion which has been entirely untreated or improperly treated. Strept infections follow criminal abortions, angina and the like. The source of the colon bacillus infection is usually from the bowel or from the bowel contaminations.

Supportive treatment, consisting of intravenous glucose, high caloric diet, whiskey, subcutaneous saline and blood transfusions will do more good than any specific form of treatment. In the case of the whole blood transfusions we have not only a general remedy but also a specific stimulation of defense mechanism by the addition of blood salts and healthy cells from the reticulo-endothelial system. The effect of the various dyes and alcohol administered intravenously is on the defense mechanism of the body and decidedly not as sterilizing agents in the blood stream itself. It is not quite logical to assume that any agent of sufficient strength to kill bacteria in the blood stream would leave the individual blood cells unharmed.

In the past fourteen years there have been admitted to the University and St. Anthonys hospitals in Oklahoma City a total of 268 cases of septicaemia; of this total there has been 180 deaths, or a mortality of 67 per cent. These cases were divided in the following manner: Fifty-one cases of puerperal sepsis with twenty-six deaths, a rate of 58 per cent; forty-one cases of peripheral infections such as cellulitis, furuncles and carbuncles with twenty-nine deaths, a rate of 70 per cent; peritoneal abscesses principally appendiceal in origin twelve cases with ten deaths,

# Deaths

C. J. FISHMAN, M.D.  
1882-1959

C. J. Fishman, M.D., 77-year-old Oklahoma City physician, died July 26, 1959.

Doctor Fishman was a native of Vilna, Poland, moving to this country in 1887. He graduated from Rush Medical College, Chicago, in 1908 and took postgraduate training in Berlin and Vienna. In 1913 he established his practice in Oklahoma City.

In addition to being Professor Emeritus of the University of Oklahoma School of Medicine, Doctor Fishman was a Fellow of the American College of Physicians and a member of the American Board of Internal Medicine.

O. A. PIERSON, M.D.  
1867-1959

O. A. Pierson, M.D., 91-year-old, pioneer Woodward physician, died July 31, 1959. He was the father of D. D. Pierson, M.D., of Mangum.

A native of Davis County, Iowa, Doctor Pierson moved to Oklahoma in 1877. He graduated from Keokuk Medical College in Iowa in 1903 and has practiced in Woodward since that time.

In 1953 Doctor Pierson was honored for his years of service to the medical profession when he was presented a Life Membership by the Oklahoma State Medical Association.

a rate of 83 per cent; pelvic abscesses and other so-called internal abscesses, fifteen cases with thirteen deaths, a rate of 86 per cent; mastoid infections, seven cases with two deaths, or a rate of 28 per cent; thirty-five cases of osteomyelitis with thirty-one deaths, or a rate of 88 per cent; infections of the kidney, eight cases with one death, or a rate of 12½ per cent (the lowest of all); five cases of angina with four deaths, a rate of 80 per cent; five cases of arthritis with four deaths, a rate of 80 per cent; thirty-seven cases of unknown primary pathology with sixteen deaths, a rate of 43 per cent and one of empyema, two of Vincent's disease and three dental infections, all with a mortality rate of 100 per cent.

As a result of this discussion and these rather terrible figures, it would seem that the study of septicaemia is entitled to more effort and concentration than it has received in the past.



# PHYSICIAN PLACEMENT

## General Practice

Donald D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, graduated from Oklahoma University School of Medicine, 1958, available immediately. No military obligations.

D. H. Bessesen, M.D., Grand Canyon Hospital, Grand Canyon, Arizona, age 61, married, Episcopalian, graduate University of Minnesota, member Minnesota Surgical Society, General Practice, General Surgery, interested University Health Service or Industrial. Prefers Southwestern part of U.S., available Oct. 1, 1959.

Johnny Bill Delashaw, 1905 1st Avenue, N., Texas City, Texas, age 25, married, graduated from University of Texas Medical Branch, 1959, will be available upon completion of internship, July, 1960.

Arnold Giesbrecht, M.D., Hallock, Minnesota, age 34, Canadian, married, Lutheran, graduate Winnipeg, Manitoba, 1957, prefers locum tenens or association with small group: suburban or locality close to cities.

Louis E. Harrington, M.D., Danbury, Iowa, age 37, married, graduated from Wayne University College of Medicine, Detroit, Michigan, 1949, veteran, will be available September, 1959.

Sherman Allen Hope, M.D., 1105 Yale Ave., Panama City, Florida, phone PO 3-6656, age 27, married, Baptist, graduate University of Oklahoma School of Medicine, 1957, in the military, discharge June 26, 1960, group, associate or solo, prefers Western and Midwestern U.S., available June 1960.

Robert Emmett Myers, M.D., 872 Ravine Drive, Cleveland 12, Ohio, age 28, married, graduated from University of Arkansas, 1955. Would like to do general practice with emphasis on pediatrics, veteran, will be available September, 1959.

Wyatt Bibb Pouncey, M.D., 118 Louise Lane, San Mateo, California, age 34, married, graduated from University of Alabama, 1950, veteran, available immediately.

Paul J. Vega, M.D., 6070 Orleans Ave., New Orleans, Louisiana, telephone Au-2584, age 26, married, Protestant, graduated from Louisiana State University, 1956, no military obligations, 6 years prior service. Interested in General Practice, available now.

Robert Glenn White, Jr., M.D., 431 Saratoga, San Antonio, Texas, age 26, married, graduated from University of Oklahoma, 1956, presently in military service, will be available August 2, 1959.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, graduated from Tulane, 1943, veteran, has an interest in teaching and wishes to get into small hospital work, availability date depends upon situation.

## Internal Medicine

Doss O. Lynn, M.D., 6101 16th Street, N.W., Washington 11, D.C., age 47, married, graduated from University of Oklahoma, 1937, board certified in internal medicine and cardiology, will have completed 21 years active service September 1, 1959, prefers institutional or industrial practice, will be available after September 1, 1959.

Vanis Pennington, M.D., 1440 W. Bethune, Apt. 402, Detroit, Michigan, age 30, married, graduated from University of Tennessee, 1953, veteran, will be available December, 1959.

Van B. Saye, Jr., M.D., 1230 Brockenbraugh Court, Metairie, Louisiana, phone VE 5-1968, age 29, married, Baptist, graduate Medical College of Georgia, 1954, Air Force Reserve, available July 1, 1960, prefers Southwest or Southeast.

## Locum Tenens

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for one week, available after July 1.

Don Allen Mills, M.D., 3911 Burns Place, S.E., Washington, D.C., age 34, married, veteran, graduated from Georgetown University School of Medicine, 1958, wants to do general practice for two years prior to specialized training. Will be available July 1, 1959.

## Obstetrics and Gynecology

Abshire, Lynn W., M.D., 708 N.E. 14, Oklahoma City, phone CE 6-8087, age 31, married, Catholic, graduate University of Oklahoma, 1956, member American College of OB-GYN, served United States Navy '46-'49, group or associate practice, available July 1, 1960.

Robert Lee Crews, M.D., 5040th USAF Hospital, Anchorage, Alaska, age 31, married, graduate of Vanderbilt, 1954, board eligible, will be available July, 1960, upon completion of military service.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, graduated from University of Texas, 1953, board qualified, veteran, will be available in July of 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, graduated from University of Minnesota, 1955, will be Board eligible upon completion of fellowship, veteran, will be available July 1, 1959.

### **Radiology**

Thomas A. Lynch, M.D., 7009 N. 17th Street, Tacoma, Washington, age 39, married, graduated from University of Washington, 1950, board certified, veteran, availability date depends on circumstances of new position.

### **Surgery**

(Name on Request) 32 years old, married, graduated from Tulane, 1952, veteran, board eligible in surgery.

### **General Surgery**

Sam Leslie Robinson, M.D., University Medical Center, Jackson, Mississippi, age 30, married, graduated from University of Tennessee, 1953, will be available July, 1961, on completion of residency.

## **Cancer Symposium to Be Held in December**

The Sixth Annual Cancer Symposium will be held December 5, 1959, at the Skirvin Hotel, in Oklahoma City. "Cancer of the Breast" will be the subject of the meeting.

Four prominent guest speakers have been secured for the one-day session. They are William T. Moss, M.D., Chicago, Director of Therapeutic Radiology, Chicago Wesley Memorial Hospital; Henry M. Lemon, M.D., Boston University School of Medicine, Boston; Lauren V. Ackerman, M.D., Barnes Hospital, St. Louis; and Cushman D. Haagensen, M.D., New York.

A complete program may be secured by writing to American Cancer Society, Oklahoma Division, 1401 North Robinson, Oklahoma City.

## **Book Reviews**

**THERAPEUTIC RADIOLOGY:** William T. Moss, M.D., The C. V. Mosby Company, 1959, pp. 403, price \$12.50.

This is an excellent presentation of the therapeutic approach to many of the problems that arise in therapeutic radiology. As the author states, this book is not a recipe for radiotherapy. However, the rationale and technique are very well discussed. The indications for and the limitations of conventional and supervoltage therapy are critically appraised.

The author discusses the response of normal tissue to irradiation at the beginning of each chapter dealing with therapy for cancer of individual organs.

No attempt is made in this text to cover the field of radioisotopes. However, the relative value of radioisotopes is mentioned when it is pertinent.

Prognosis and results are included in the discussion of therapy of the various lesions. The complications which may arise in patients with cancer are very well covered in this text and should be especially helpful to the physician interested in cancer therapy.

The book is written in a concise form, easily readable and should be a very worthy addition to the library of radiologists interested in therapy.—*Melvin C. Hicks, M.D.*

**TEXTBOOK OF SURGERY**, 3rd Edition: H. F. Mosley, Editor, The C. V. Mosby Co., St. Louis, 1959, price \$17.00.

This volume is one of the better of the several textbooks of surgery. It is, in general, well written, with a reasonably complete and up-to-date bibliography following each chapter. Illustrations are excellent and as a result this volume has been a favorite with medical students for several years. No textbook can be up-to-date in the rapidly developing and expanding field of cardiopulmonary surgery, yet this section has been revised quite credibly at the date of writing. Like all textbooks of this nature, specific details on a specific problem are lacking and the supplementary bibliography must be used accordingly along with the more recent medical literature indices. The principles of surgery are well encompassed with a definite flavor of Canadian and British surgery.—*John A. Schilling, M.D.*



## MISCELLANEOUS ADVERTISEMENTS

17 BED hospital, clinic and equipment for sale. Prefer to sell all to one buyer in attractive package offer, but will consider other offers. Equipment includes X-ray, fluoroscope, Medco Sonalator, BMR, diathermy, etc. In settling estate of Charles W. Ohl, M.D., facilities and equipment will be sold at considerably less than original cost, and time payments may be arranged. Contact Walt Allen, Co-Executor, 116 North 4th Street, Chickasha, Oklahoma.

WANTED: General Practitioner—Five man established group. Prefer locum tenens for one year. Will meet competitive salary requirements for qualified man. Contact H. B. Landholt, Business Manager, Physicians & Surgeons Clinic, Box 711, Holdenville, Oklahoma.

WANTED: Internist to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

WANTED: University Health Physician, man or woman. Salary depending upon experience. Approximately 9,500 students. Fifty bed hospital. Contact Roxie A. Weber, M.D., Director University Health Service, Oklahoma State University, Office of University Infirmary, Stillwater, Oklahoma.

PHYSICIAN NEEDED in Konawa, Oklahoma. Population 3,000 with no M.D. Building and some equipment available; also possibility that community will construct and equip modern clinic. Contact Robert D. Percy, Box G, Konawa.

REGISTERED LABORATORY TECHNICIAN: Major oil company in progressive southwestern community of 25,000 has opening for female registered laboratory technician for complete clinical laboratory. 40-hour work week. Excellent employee benefits. Give education, experience, and salary requirements in initial letter and include photograph. Write Key F, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

FOR SALE: One 220 KV Westinghouse Deep Therapy X-ray Unit, complete with complete set of treatment cones, including intermediate therapy cone set and release treatment stretcher. Price: \$5,000. Owner may be contacted via CE 2-5501 or P.O. Box 1825, Oklahoma City, Oklahoma.

WANTED: Surgeon to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

PHYSICIAN NEEDED in Weleetka, Oklahoma; a city with population of 1500 and trade territory of 3000; Clinic available; community will remodel building to suit physician and offer other cooperation in the establishment of a practice; New hospital being built within 10 minutes from clinic. Contact: Bob Carroll, Cashier, State National Bank; Phone Sunset 6-2311.

BARGAINS—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-RaY Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.

INDUSTRIAL PHYSICIAN, Oklahoma City, covering 2,000 employees, maximum salary \$12,500 depending on experience and training. Write Key G, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Shartel Station, Oklahoma City, Oklahoma.



provides therapeutic levels . . . for 24 hours . . .  
with low incidence of sensitivity reactions . . .

WHENEVER SULFAS ARE INDICATED®

# KYNEX

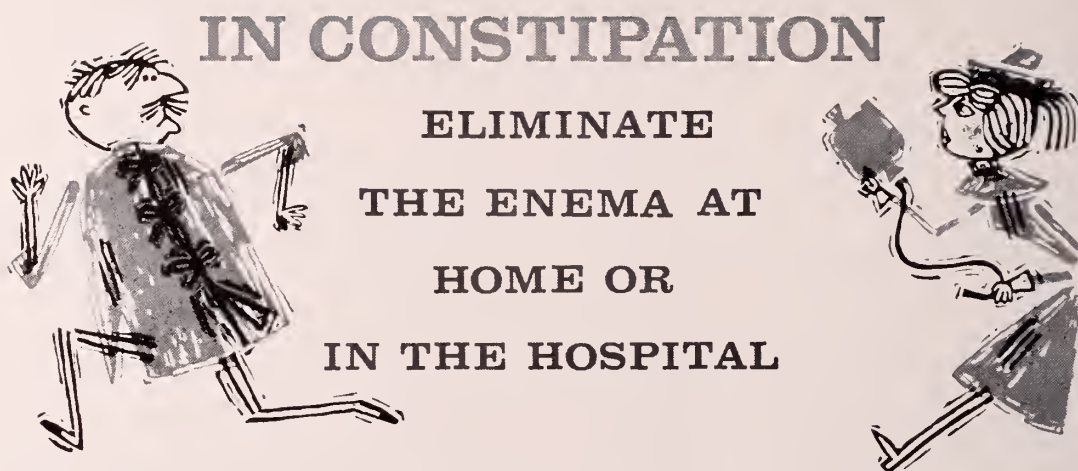
Sulfamethoxypyridazine Lederle

0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION

LEDERLE LABORATORIES, a Division of  
AMERICAN CYANAMID COMPANY, Pearl River, New York







# IN CONSTIPATION

ELIMINATE  
THE ENEMA AT  
HOME OR  
IN THE HOSPITAL

**"The effectiveness of the senna preparation ['Senokot'] in reducing the need for enemas...is clearly apparent..."**

Kasdon, S. C., Morentin, B. O.: J. Internat. Coll. Surgeons 31:455 (Apr.) 1959.

...time and time again, gentle, natural acting 'Senokot' is cited in clinical reports as the therapy of choice in all patients with acute or chronic constipation.

'Senokot' acts uniquely, through neuro-stimulation of Auerbach's plexus in the colon, duplicating the process of normal defecation.

When therapy with 'Senokot' is substituted for enemas the difference is safe, natural physiologic correction of constipation, and increased patient comfort, as well as significant saving of time for your hospital's nursing staff.

THE EFFECTIVENESS AND SAFETY OF THE DOUBLY STANDARDIZED SENNA CONCENTRATE CONTINUE TO BE DOCUMENTED BY CLINICAL AND LABORATORY INVESTIGATIONS WHICH CONSTITUTE THE FASTEST GROWING BIBLIOGRAPHY\* ON CONSTIPATION CORRECTION

\*Available upon request to the Medical Director

<p><i>natural bowel corrective</i> <b>Senokot</b><sup>®</sup></p>	<p>Small and easy to swallow, in bottles of 100. <b>TABLETS</b></p>
<p><i>natural bowel corrective</i> <b>Senokot</b><sup>®</sup></p>	<p>Cocoa-flavored, in 8 and 4 ounce canisters. <b>GRANULES</b></p>

STANDARDIZED CONCENTRATE OF TOTAL ACTIVE PRINCIPLES OF CASSIA ACUTIFOLIA PODS, PURDUE FREDERICK

 *The Purdue Frederick Company*

DEDICATED TO PHYSICIAN AND PATIENT SINCE 1892  
NEW YORK 14, N. Y. | TORONTO 1, ONTARIO

© Copyright 1959, The Purdue Frederick Company

# Editorial

## Youthful Offenses in Modern Culture

The F.B.I. reported that 21,229 major crimes were committed in Oklahoma during 1958 or 929 crimes for each 100,000 residents. In the same report appears the statement that the number of juveniles arrested for serious crimes rose by 8.1 per cent over the previous year. Our attitude toward juvenile delinquency has been a detached one which is possible because we have considered conditions as prime causes which are in reality symptoms of disease in our society. A basic understanding of the social forces involved should lead the members of the profession to assume a more dominant role in the study and management of the problems of youth in their communities. To this end *The Journal* is quoting extensively from the Tenth A. Walter Suiter Lecture given by Harry L. Shapiro, Ph.D., Curator of Anthropology, American Museum of Natural History, New York, N.Y., before the New York Academy of Medicine.\*

### An Old Problem

"Youthful offenses, or in the current terminology, juvenile delinquency, is nothing new. Like a great many other consequences of community living, it has been with us for a long time, and as a phenomenon it is widely dispersed. For these reasons it is possible to see in it the multiple perspectives of time, space, and culture.

"However, what seems ominous to many of us is the apparent increase in the frequency of such offenses against society, the violence associated with them, and the latent fear that the consequences may become out of hand and thus threaten our own safety and security. One has the distinct impression, from the kinds of remedies various people are suggesting, that these fears have overwhelmed good sense, or that the dimensions and the nature of the problem are totally misconceived.

\*Youthful Offenses in Modern Culture: Bulletin of the New York Academy of Medicine, 35: 341, (June) 1959.

"I propose to make a distinction here between juvenile delinquency and individual criminal acts by youths. The former has become commonly associated with a distinctive type of adolescent and, I believe, arises primarily out of social maladjustments. It is behavior characteristic of adolescents acting in association with others. Or to put it another way, it is behavior that emerges from the interaction of a group of adolescents. An adolescent who has joined a gang because of neighborhood pressure, or for other social reasons, and who commits offenses in concert with other members of the gang, or even alone but according to the traditions of gang behavior, or even one who is committing anti-social acts because of various kinds of social influence, is in my definition a juvenile delinquent. His behavior may be reprehensible to society at large, but he is acting according to a definite and established pattern, acceptable and even obligatory for his gang or for his contemporaries who set the values and standards of his world. This is quite different from the behavior of an adolescent who, overwhelmed by personal passion, frustration or rebellion, commits a criminal act. The offense may be the same, but the motivation and the cause are different. In the one case there is a social mechanism that channels the behavior; in the other, the action is personal and not primarily social. Now, obviously, such a distinction may break down in many instances, but it has a reality that explains some of the fluctuations in the frequency of juvenile delinquency and offers some hope that such behavior may be controlled by social measures since it springs from social causes.

"Before proceeding further, however, I want to make clear my conviction that juvenile delinquency is a complex phenomenon arising out of a variety of causes. The overt behavior pattern itself may have a misleading aspect of uniformity, but like another kind of headache, it masks a number of dif-



ferent ailments. Single cure-alls are as likely to be effective in the one case as in the other.

"Since juvenile delinquency falls into a kind of social pattern of its own, it is pertinent to ask, perhaps, naively, what is society and why are offenses against it reprehensible? Society, of course, is a community of people who live within a common, organized system of institutions and/or customs. The members of such a community share, accept, and anticipate certain standards of behavior from each other. Society may be other things as well, but at its minimum it is at least this much. Now such a group, little or large, simple or complex, can function only if a sufficient number of its people abide by its laws or traditions. If everyone operated independently, or contrary to basic expectations, the society would collapse into chaos.

". . . one of the primary functions of any organized community is to train the young to the standards of behavior expected of them according to their role and place in it. The process of social conditioning begins almost from birth. At first the child is exposed to controls exerted by the mother and by the family. Rewards and punishments of varying kind and degree are meted out by parents, siblings, and other members of the family, according to the inherited patterns of the culture to which the family belongs. As the child grows up, he or she is exposed to the disciplines of still wider circles of individuals and institutions. In our society, for example, the school becomes an important surrogate as the child emerges from the dominance of the family. But in many other ways, intricate and subtle, the pressure of the larger society continues to mold and reinforce values, attitudes, and behavior. The literature we read, advertisements, television, radio, theaters, movies, the heroes and heroines evolved by our culture, and other multifarious influences affect the child, the adolescent, and the adult.

"Out of all this come individuals who conform subconsciously and without effort to the patterns of behavior developed by their society or culture. . . .

"Social behavior, therefore, is essentially a kind of automatic conformity to the standards and values of the community. . . .

### Time and Space

"There have been times in Western civilization when economic conditions have borne so heavily on the economically depressed classes that mere survival was at stake. Certainly in pre-revolutionary Paris, and in the London of the early nineteenth century, economic factors must have played a not inconsiderable part in the delinquency, juvenile as well as adult, that flourished in those eras. The wonder is that, considering how badly the poor fared then and in other periods of European history, the rate of juvenile delinquency was not greater than it was. It is a measure of how strong social conditioning must be if it can restrain a hungry and depressed section of the population, for although poverty and economic oppression have existed for long periods of time in European history, violent revolutions are, after all, relatively rare. Indeed, when one looks at other areas where poverty has also been extreme, for example in India, in pre-Communist China, and even in Puerto Rico a generation ago, the juvenile delinquency is not commensurate with what one would expect if economics were the primary factor. For these reasons I do not consider economic factors alone as a very important element in our current frequency of delinquent behavior. Among the two most recent populations to settle in New York City, southern Negroes and Puerto Ricans, the economic conditions here, poor as they may be, are better than they were in the South or in Puerto Rico. The increase in delinquency in these groups has apparently taken place after their settlement in this urban area.

"There are two aspects to youthful offenses: there is the offense, a species of social behavior or misbehavior; and there is the offender. Although they are inseparable, it might be useful to look at them as two separate sides of the same coin—social dynamics and the individual.

"From my prefatory generalizations about society, it is obvious that if the agencies



through which society conditions the young and determines their behavior are defective, or are working at cross purposes with traditional standards, the process of training and indoctrination will, to that extent, be deficient. This can come about in a variety of ways, too numerous and intricate to analyze here. In general, large complex societies, compared with small homogeneous communities, always have a tendency to develop subcultures and other, even more marked, forms of social and cultural heterogeneity. This in itself need not be undesirable. But when social and cultural heterogeneity encourages conflicting tendencies within the society, the results can become significant in terms of juvenile delinquency.

"Let me explain this point in a little more detail. There are, it seems to me in this connection, two forces that to some extent integrate and intensify a certain type of disharmony in modern society. One is the trend toward urbanization, and the other is the rate of technological change. Even in fairly homogeneous nations, the city generally occupies a peculiar cultural position. It is a place where traditional bonds between social classes are loosened, where distance between groups widens, and where older patterns tend to break down. Here all the divergent elements of a nation assemble and create a highly complex interplay of conflicting currents. It is no accident that revolutions are apt to occur in urban centers where the disparate and disaffected elements of a society are apt to meet, and history itself demonstrates how important the city is in the initiation of new ideas, new processes, and in the progress of civilization itself.

"In modern societies, and nowhere more than in the United States, these characteristics of urbanization are no longer restricted to the cities, but have spread nationwide. As a result, the distinction between the city slicker and the country bumpkin is rapidly disappearing.

"All this has happened in our time because in the last century the pace of technological change has gradually accelerated to an unprecedented degree. In the past, the social effects of technological progress spread slowly and could be more easily absorbed by society as a whole. Nowadays our

technological revolution not only contributes to the stresses of urban life, but carries them with great rapidity throughout the nation.

"If we think primitive man has been hard pressed by the rapid changes forced upon him by contact with Western civilization, our plight, although a self-induced one, is equally profound. We have only to think of the frequently cited effect of the automobile to realize how fast our culture and our way of life have been changed by its introduction. Within a little over a generation, the car has remodeled profoundly almost every aspect of living, and has created problems that we have not yet learnt to solve. If we multiply the effect of this single technological change by the host of changes that have beset us—the cultural influence of radio, television, movies as examples—it is no wonder that it often seems that one generation has difficulty understanding the next. For the effect of all these introductions into our lives is not the same on our children as it is on those who were nurtured in a different environment. Influences that simply do not penetrate our cultural skins, or if they do are rejected, exert a profound influence on our children. The inevitable result, when changes of this kind come thick and fast, is to develop an increased cultural separation between generations and, consequently, a fruitful source of conflict between them. In normal, primitive societies, or in our own more isolated communities, comparable cultural separation between generations did not exist.

"The significance of this for some aspects of juvenile delinquency lies in the fact that the family, which was the traditional center in our society for adolescent activity, has lost much of its authority. Adolescents who in an earlier day expected and were expected to participate in family affairs, to use their homes as the scene of their social activities, and who were anyway unable to get very far away, do so less in these days. The young man in the family car, or in his own jalopy, prefers to take his 'date' as far from home as possible. Various commercial establishments for his entertainment are now easily accessible to him. His contemporaries set standards of behavior which his

family have little chance of discouraging. The upshot of all this is an increasing separation of adolescent from family influences, a lack of the sympathy and understanding that, shared in common by parents and offspring, can serve to preserve the values that govern behavior.

"The kind of conflict that grows out of such conditions can be seen perhaps more clearly in parallel situations among primitive people than they can in complicated modern societies. One of the tragedies that has with increasing frequency overtaken, hundreds on hundreds of primitive cultures in our own time is this, perhaps inevitable, weakening of the traditional patterns by new and often revolutionary influences. The introduction of Western civilization to many primitive groups is by the very nature of the contact rapid and overwhelming. It has meant a loss of prestige for the ancient codes and values and the development of conflict between the old and the new, resulting frequently in behavior that is strikingly like what we call juvenile delinquency. Such dislocations hit the adolescent in particular. He has not been hardened in the mold of his inherited tradition as his elders have been, and his often inadequately based interpretation of the new does violence to the community's patterns. Although such advocates of the new ideas may eventually convert the community to a new synthesis, the transition is often a period of stress and strain. Many groups have tragically foundered in the passage.

"But conflict within modern society, arising out of the rapidity of change and the consequent difficulty of social values to keep pace with it or to adjust such changes to traditional values, is further complicated, particularly in the United States, by several other factors.

### **Modern Culture**

"From its very beginnings, the United States has been characterized by social mobility. The various groups that have successively immigrated here have each found themselves liberated from the rigid bonds that kept them within inherited social classes. Although most of the immigrant

groups entered the hierarchy of our society at or near the bottom, they found in it more abundant opportunities for advancement, a more fluid social organization, and generally speaking, fewer barriers to a rise in the economic, and consequently the social scale, than they would have in the old countries. Indeed, we as a people have always been proud of this. We speak of our country as the 'land of opportunity'; we affirm that any American child can aspire to be president. It is a cherished value that most of us would not have otherwise. But it can and does create a highly competitive situation—healthy and perhaps desirable under certain conditions. When, however, symbols of status replace reality and become a measure of success, where success is all important, their possession becomes essential. Now most societies are highly sensitive to status symbols, but ours in addition affirms that everyone should want them, that those who do not are lacking in American spirit and drive and are failures. Keeping up with the Joneses permeates all our communities. Adolescents, who normally want to be as like their fellows as possible and have what they have, are particularly susceptible to status symbols. The urge to achieve them is enormous. But if the deterrents are weak, if social conditioning is defective, the urge expresses itself in delinquency.

"This urge is underlined by the mass media so typical of our times. The movies and other popular forms of entertainment set before the youth of modern society a galaxy of heroes and heroines, a picture of luxury, of morals and of life that is depicted in the most alluring manner, frankly designed to appeal to the largest possible audience. The unreality of this world and its meretricious standards are not easily penetrated by youngsters of little experience. The ideals displayed are purely commercial and artificial.

"Insofar as the domination of mass entertainment by the standards of crude commercialism has been permitted and accepted by the public, its products do arise from the culture. But they do not represent the best of it and may, in fact, be inimical to it. Their effects can scarcely be good. How



bad they are, is difficult to assess. If the delight that many adolescents take in them (without exhibiting much evidence of discrimination) is any index, one would have to say pretty bad. I am far from claiming that the false values and the anti-social goals glorified by the movies, television, and comics lead directly to juvenile delinquency. But in a world where material things have an exaggerated value and where the young are encouraged to want them desperately, cinematic fantasies that seem to make it all desirable and easy to attain cannot fail to have some effect. Such influences can only contribute and reinforce tendencies either latent or budding. To see in all the glamor of a movie production varieties of socially disapproved behavior admired and rewarded, can certainly not be said to act as a deterrent.

"History has added another element of tension and conflict to American society that is especially characteristic. Because the United States was settled by successive waves of migration, we have almost from the beginning been multi-national in origin and multi-racial. Each new migration wave brought to the society and culture developing here patterns of belief, custom and behavior that were different, sometimes repugnant to American standards. It would require a great deal of time to go into the interplay of forces that this experience (repeated over and over) released. The plain fact is that immigrants into this new cultural and social milieu were usually at a loss to understand fully the values and subtleties of their adopted country.

"In the United States this situation, full of potential conflict, was aggravated by several circumstances. The immigrants were generally drawn from economically depressed classes, poorly educated and ill equipped to contend with the demands of the American scene. Often they spoke an incomprehensible language, practiced a strange religion, and followed customs that struck Americans as odd or bizarre. The older inhabitants often distrusted and were deeply suspicious of the newcomers. But perhaps as significant as any single factor, many of the waves of immigrants were

overwhelming in number, so that native Americans felt inundated and threatened. With lack of understanding on either side, the results were inevitable. The immigrants were either ignored as a necessary evil, rejected as inferior, or actively fought as a menace.

"The immigrants, themselves, were more often than not insulated to a certain extent from these attitudes. Occupying the lowest economic levels, their contacts were limited and their demands on society at a minimum. Unfamiliar with American mores or the English language, they huddled together in special quarters where they could find comfort and support from their cogeners. Anyway, they were grateful for whatever improvement migration to the United States had brought to their lot. Even the wretched conditions, by native American standards, in which they lived were sometimes better than they had known. In effect, the immigrant groups, by virtue of their numbers and their residence pattern, were able to establish themselves in a transplanted, if temporary, sub-culture of their own, recognizably different from the prevailing patterns in the United States.

"Their children, the second generation, presented a totally different problem and one that in our urban centers has set the stage for much of what we call juvenile delinquency. Upon this generation, born in this country of parents born in another, fell the real burden of bridging the gap between the mores and culture of their parents and those of their native country. The immigrant parents had been formed by one society and equipped by it with guide posts serviceable enough even for this new world. The children, once they were exposed to the molding influences of the United States, were eager to become Americans, to speak English, and to abandon the old country ways. The normal respect for the authority of the parent suffered grievously in these circumstances, since the American-born children looked upon their parents with a curious mingling of unease and shame at their foreignness, irritation with their outmoded standards when they interfered with their own, and superiority over their ignorance.



And without authority and respect, the transfer of traditional values from parent to child is difficult. The continuity of generations upon which society depends is broken or loosed. And the parents, bewildered by the rebellion of their children, were often unable to cope with them since the new society in which they now lived did not offer the support they might have received in the old country. Thus the family, so vital a link in social conditioning, frequently was unable to exercise its function in these immigrant subcultures that were slowly and painfully adjusting themselves to a new milieu.

"Children cut loose from the familial control were easy victims of the unhealthy influences of the street society that flourished, and too many became delinquents. It has been a recurrent fact that each immigrant group in our crowded urban areas has tended to display this typical expression of social maladjustment in a high frequency of juvenile delinquency.

"The tendency has more often than not been aggravated by corroborative circumstances that I think are worth mentioning. One is the need that most of us feel to be a part of a group. Where the parental culture was repudiated, the second generation children sought to find a place in the society and culture of the United States. The astonishing thing is how many succeeded, but the casualties were also high. Since the family could not provide an acceptable social framework, many second generation adolescents identified themselves with the nearest substitute—the company of others in the same situation—and a kind of new culture and society evolved in the streets and neighborhoods. This was a spontaneous outgrowth, but one not disciplined by traditional controls. Often it was a harmless association that might be dropped like a cocoon as the adolescent made progress in his integration with the larger society. But frequently enough it led to anti-social and predatory behavior because the rewards and the prestige system of these groups demanded it. And once committed, many young people found it difficult to break away.

"How much the growth of such groups or gangs arose out of rejection by the domi-

nant culture is impossible to say. The impression one gets from various sociological studies, from conversation, and from the literary genre that deals with minority groups, strongly reinforces the conviction that it is not a negligible factor. If the path of integration with the larger social group is blocked and the aspirant is thrown back, he may all the more readily affiliate himself with these marginal units.

"I have already mentioned that juvenile delinquency is often high in second generation groups in our crowded urban areas. But the phenomenon is not confined to this country, although, because of our population history, it is especially notable here. In European cities where immigration has settled similarly foreign and alien masses, the same tendency toward delinquency arises and for the same reasons.

"That gang society is culturally orientated is particularly evident in the way these marginal adolescents organize themselves. They emblazon their jackets with insignia that show the world they belong. They wear clothing that is almost a kind of uniform. They form tightly knit groups with intense loyalty to the group and to one another, and on the other hand, hostility for any outside group. Courage or daring is admired and used as a mechanism for establishing status and prestige. Initiation, sometimes with elaborate ritual, may mark entry into the group.

"All these characteristics are typical of primitive, cultural organizations. And it is more than interesting that they should become associated with gang life in our modern cities. Adolescents, not finding satisfying social mechanisms in their own environment, create them. The deep need to belong, to have a place, and to express oneself socially cannot be denied. One is almost tempted to say that some reaction of this kind is a good and hopeful sign. The long process of human adaptation to culture has endowed us all with a capacity and consequently a desire for association with our fellows. In many ways we cannot express ourselves fully, exercise deep-seated drives, and obtain certain types of satisfaction unless we do so through social mechan-

isms, formal or informal. The point I am making, therefore, is that the gang structure of adolescent society in certain areas of our cities is, under the circumstances, a natural one. Its very existence reflects a strong capacity for socialization that cannot be discouraged. The unfortunate thing is its development outside the restraints of the traditional structure of society. The spontaneous emergence of gangs to fill social voids at least implies that, directed by useful social channels, this drive could be salvaged and prove valuable.

"A common confusion about gangs is the assumption that they are primarily organized to commit offenses. I think this is fundamentally wrong and as long as it exists will interfere with a realistic understanding essential to dealing with the problem of juvenile delinquency. The adolescents who organize and join these groups do not, in most cases, do so deliberately in order to prey on society. The offenses against society are in a sense incidental. They are expressions of organizations which, having sprung up to fill a gap that has developed in society, have not been domesticated or fitted into the traditional behavior patterns. Unregulated, and in a sense free-wheeling, these ephemeral groupings tend to develop individualistic behavior that can and does lead to offenses. It is important to recognize that such youthful group behavior is initially quite different from the behavior of adults committed to a life of crime. The key to the former is social fellowship. This does not, of course, mean that youthful gangs may not be fruitful sources of recruitment for the activities of the latter.

"One of the impressive things in a so-called primitive society is the participation of every one in both community and family activities. The process begins at a very young age, and suitable tasks are assigned to children we would consider nowhere near ready for responsibility of any kind. Indeed, this is an important part of education and training for adult skills and future roles. I have seen fathers take their small sons on their expeditions and initiate them in the traditional knowledge of a breadwinner. And little girls, hardly more than babies, begin to learn household tasks and even take

full charge of their younger sibs. Thus these children from an early age play a real and significant role in their family life. They have an established place in the society, they discharge obligations placed on them with astonishing reliability, and they have a dignity that comes from such responsibilities.

"Modern society, Western society, the United States in particular, has relegated the child more and more to a peculiar non-participating membership in society. There are reasons for this. More and more of us live in apartments that don't belong to us, and for which we have no special responsibility except to pay the rent. Any repairs or chores our apartments require we expect to be attended to by paid mechanics or superintendents. We don't shovel the snow from the sidewalk, we don't fire the furnace or sift the ashes afterwards, even if these tasks were there to do in this age of automatic gas or oil burners. Even minor repairs seem too difficult when there is someone to do them for us and, anyway, why should we do these things for someone else's property? The chores that in an earlier age in this country were the allotted task of most boys no longer exist, and those who live in typical urban environments have virtually no responsibilities in the economy of the family.

"Besides this freedom from a contributing role in the family, boys nowadays are not permitted to take on full-time employment. The appalling abuses of child labor in the nineteenth century evoked a public revulsion that gradually brought about labor laws that were based on humanitarian principles and not on social ones. They had the effect of prohibiting all young people under the age of 16 from working. This, combined with compulsory school attendance, has served to delay our adolescents from the assumption of a place in our economy except as consumers.

#### **Impact of Education**

"Besides all this, education has become for most Americans a key with which to open the doors of advancement and success. Every responsible parent sets as high an educational goal as possible for his offspring, and will sacrifice a great deal to further such ambitions. The extraordinary



increase in the enrollment of our upper schools is a testimony of this national premium on education. No one will, I think, seriously deny the values of education, although many might argue about the virtues of our particular system. But there is no denying that, for whatever causes, a not inconsiderable number of the juvenile members of our society are not making the best use, or even a good use, of the educational system that is provided. They go to school—they are physically present in the classroom, but the spirit is not there.

"This is a dangerous observation to make, particularly in a democratic society which not only believes firmly in education, but even more, that every child is entitled to a college education. I am not challenging this belief, although I think it can be done. What I am saying is that an uncomfortably large number of boys and girls, in high schools particularly, are reluctant scholars, uninterested in their work and potential sources of trouble. This lack of interest may reflect bad preparation, poor pedagogical techniques, psychological difficulties, adolescent preoccupation with maturing physiological processes, social influences like those I have already described, or plain intellectual inability to deal with concepts of academic subjects. But whatever the cause, adolescents who are unwilling scholars, who refuse to do their work at school or at home, whose interest is neither captured nor in any way engaged by their studies, are at a loose end. Since they cannot work and have no domestic duties or chores, they are ripe for the life of the streets, gang associations, and other forms of diversion that easily fill the vacuum. Since young adolescents are normally high-spirited, full of energy and eager for adventure, the stage is set for behavior that can readily become anti-social.

### **Maturity and Responsibility**

"It is a curious blindness on our part to fail to recognize that as we lengthen the period during which the young are segregated from social and economic responsibility and are treated as immature, their physical development is not equally delayed. In earlier days and in other places, youths of 16 to 17 were already carrying a man's

load. It was no uncommon thing in our own immediate past for youths only a little older to have already commanded ships and to have led men in dangerous enterprises. And in many primitive groups, even provision for the sex life of adolescents of comparable age is arranged in a socially acceptable manner. To our failure to face the fact that our adolescents, too, at this age are acquiring the strength of men, the desires of men, but not the restraints that come from discipline, responsibility, or socially satisfying activities, must be laid some of the blame for the conditions we vociferously deplore.

"In this necessarily rapid survey of the phenomenon of juvenile delinquency, I have, I am all too aware, omitted to mention a number of factors that some observers have stressed in their commentaries. For example, the spread of drug addiction has been often cited as a significant determinant of crime. And I think the evidence can scarcely be denied that the need to obtain money to buy drugs has driven many adolescents to commit offenses. But from my point of view, this is a secondary cause arising from the kind of basic social maladjustments I have been describing.

"Similarly, I would not deny that broken homes, psychiatric situations, and indeed a number of other possibilities also, might be cited. But these, too, seem to me to follow from a more fundamental social and cultural malaise. You may recall that I began with the conviction that juvenile delinquency is, in fact, a complex phenomenon.

"The remedies consequently, in my opinion, must attack the basic social and cultural situation that forms the medium in which juvenile delinquency thrives like germs. To offer such palliatives as more play-grounds, desirable as they are, does not begin to touch the heart of the disease. It requires, to begin with, the kind of attention it has rarely received—sympathetic and objective investigation at a basic level. And, if my analysis has any validity, it will demand equally basic social measures that will not be easy to apply. Society will have to decide whether the effort is worth while."

Subheadings are the Journal Editor's—not the author.



## Post-Operative Reaction Following Mitral Commissurotomy

AN INTERESTING CASE of rheumatic mitral stenosis which was carefully followed by the author is presented. The patient had had rheumatic heart disease for several years with a diagnosis of mitral stenosis for at least six years. He had been evaluated for mitral commissurotomy by several clinics and it was finally decided that mitral commissurotomy should be carried out. This was accomplished and the patient had for approximately a year and one-half episodes of chest pain, fever and dyspnea. The case was also complicated by grand-mal convulsions of obscure origin. The case is presented to point out the operative selection of patients for mitral commissurotomy, the difficult post-operative problems that may occur and the follow-up results. A discussion of rheumatic fever, rheumatic heart disease, and migraine headaches is presented.

### Case Report

The patient is a 42 year old white male accountant who had fever and joint pains as a child which were not recognized as manifestations of rheumatic fever until later. He was reported to have been rejected by the Army in 1940 with a diagnosis of rheumatic heart disease. The patient had several episodes starting in 1953 of precordial pain with marked dyspnea that would come on with no apparent cause. They quite commonly would come on early in the morning on arising. The patient

FRANK H. AUSTIN, M.D.

Frank H. Austin, M.D., graduated from the University of Oklahoma School of Medicine in 1946 and has since been certified by the American Board of Internal Medicine.

Doctor Austin is a consultant to the United States Public Health Service at the Indian Hospital, Lawton, Oklahoma. He is a Fellow of the American College of Physicians, a member of the American Heart Association, the American Diabetes Association and the Oklahoma Association of Internists.

would become cyanotic with the episodes but would be relieved after four or five minutes of rest.

The patient was admitted to Memorial Hospital on February 19, 1953, with pain in his right costovertebral angle. An intravenous pyelogram was compatible with the findings of a stone in the ureter. His urine showed innumerable white blood cells. These symptoms subsided and the urine cleared. The patient also at that time had a GI series which showed pylorospasm and duodenitis. The patient at this time had frequent complaints of epigastric and vague abdominal distress. These symptoms have continued throughout the course of his present illness.

He was readmitted November 30, 1954, to Memorial Hospital with chest pain, dyspnea and cyanosis. This was my first contact with the patient. Physical exami-

nation revealed a well developed, well nourished white male. Pupils were round and equal and reacted well to light. Fundi and retinae appeared normal. There was no distention of neck veins. There was a presystolic rumble at the apex with a loud snapping first mitral sound and a low pitched diastolic rumble at the apex. The second pulmonic sound was accentuated. The heart was fibrillating at a ventricular rate of 80 per minute. It was noted that the patient's legs and feet became very cyanotic in the dependent position and were quite cold in the recumbent position. Because of the recurrent episodes of chest pain, cyanosis and dyspnea, the patient was advised at this point to have a mitral commissurotomy.

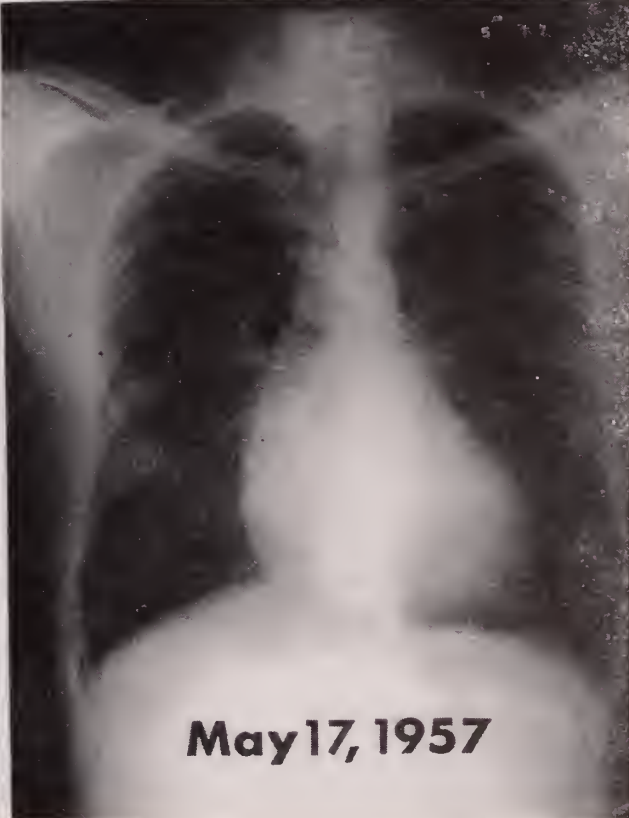
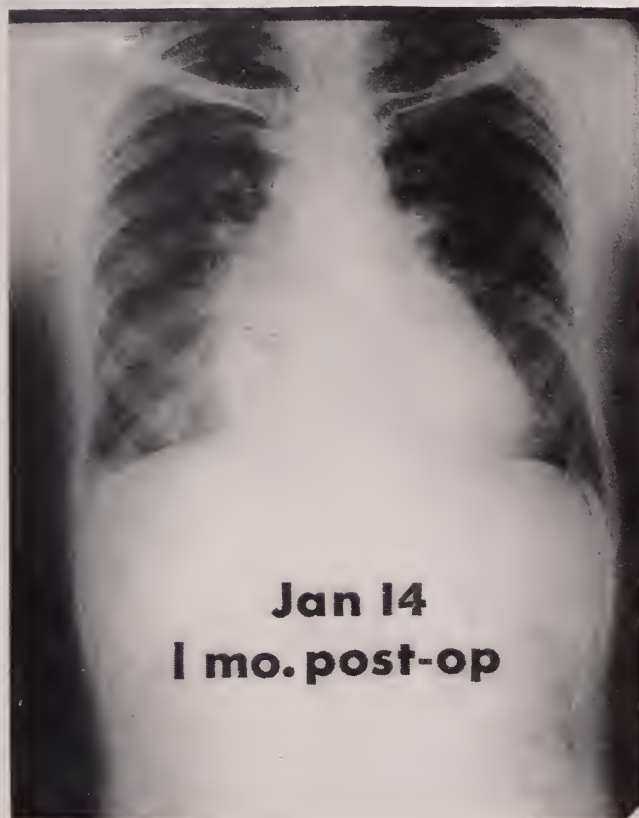
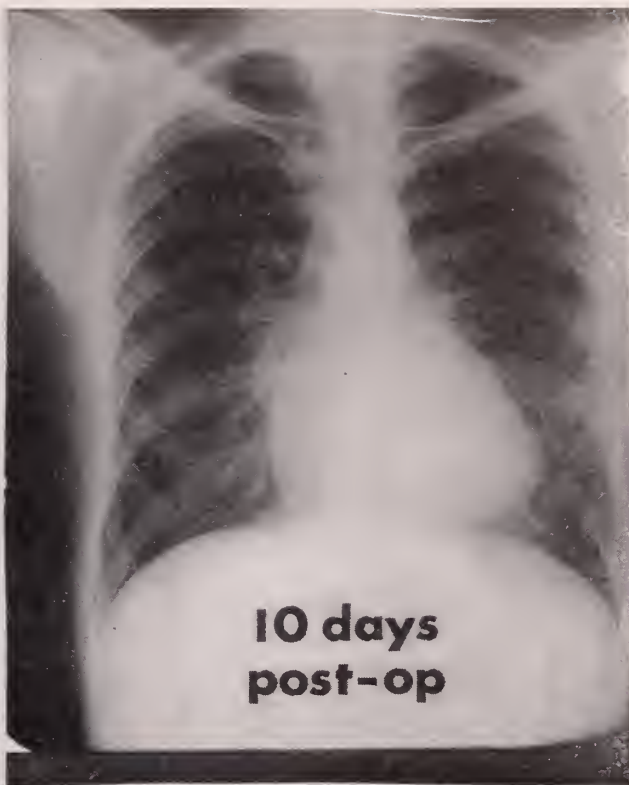
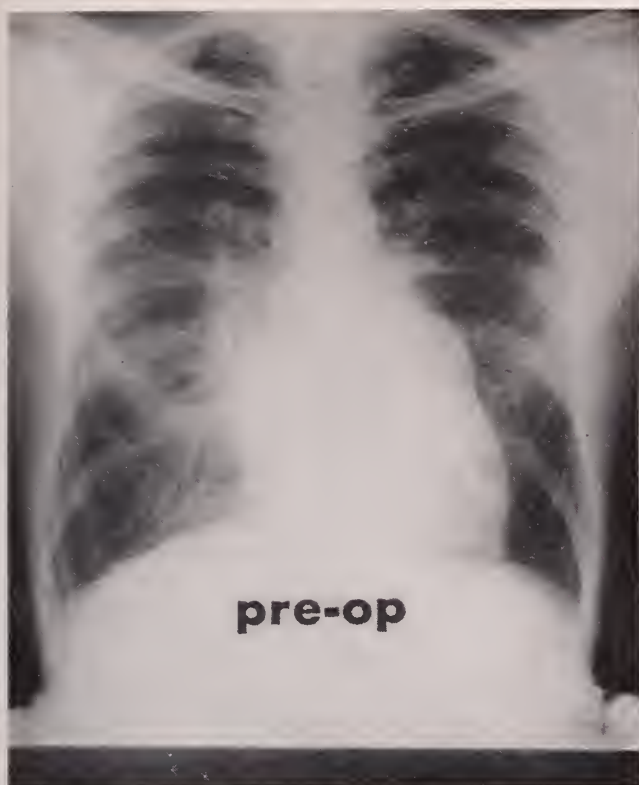
The patient had been seen at Scott-White Clinic prior to this time and had been advised to have a mitral commissurotomy. He was later seen at Mayo Clinic where a mitral commissurotomy was thought not to be indicated at that time. He was scheduled for operation six months before this time in Oklahoma City but the patient decided against the procedure at the last minute.

The patient was admitted to Wesley Hospital, Oklahoma City, and a mitral commissurotomy was performed on December 11, 1954. No difficulty was found in fracturing the heart valves. There was no mitral regurgitation noted. The pre and post-operative films are shown to demonstrate the marked change in cardiac contour in the post-operative films. The patient did well post-operatively and felt very well for two weeks following the procedure. He was seen December 28, with chest pain, fever of 101, sedimentation rate of 43 and a white blood count of 13,800. Examination of the heart revealed a systolic click and very short systolic murmur over the precordium. The diastolic murmur could not be heard. The patient's color and general condition appeared to be good. He was considered to be having an episode of post-operative pericarditis and no specific therapy was given.

Two days later on December 30, 1954, the patient became more acutely ill with chest pain, shortness of breath and fever, and was

admitted to Memorial Hospital with a temperature of 99.4. There was marked increase in cardiac dullness and chest films showed enlargement of the cardiac contour. Electrocardiogram showed auricular fibrillation and digitalis effects. At this point it was thought that the patient was undoubtedly having a post-operative reaction of a non-specific nature or he was having a recurrence of rheumatic fever. He was started on Cortisone, 50 milligrams every six hours and was discharged from the hospital after an eight day total stay. On January 10, 1955, the patient was doing well, had less pain, no fever and Cortisone was reduced to 25 milligrams every six hours. The sedimentation rate was 14 mm. in one hour at that time. On January 12, 1955, the patient had recurrence of low grade fever and Cortisone was increased to 50 milligrams every six hours. On January 14, pulse increased from patient's usual 80 to 100 per minute. He became extremely dyspneic with rales in both bases and appeared severely ill with pulse at times up to 150. Respirations were 38. Systolic blood pressure was as low as 90 millimeters of mercury. The patient was then taken off of Cortisone and given a short course of ACTH and then treated only with bed rest and salicylates. The patient gradually improved with the heart size returning to normal. Sedimentation rate on January 14, had been 36 millimeters and on discharge from the hospital on February 3, was 16 millimeters in one hour. The patient was barely home when he was readmitted with enlargement of the heart, fever and dyspnea. On this admission the anti-streptolysin titer was 50 units which was considered to be against activity of rheumatic fever. Throat culture showed beta-hemolytic streptococcus. The patient was started on penicillin. He was treated with aspirin and occasional injections of ACTH and he gradually improved and was discharged on March 16, 1955. He then remained quite well and was ambulatory at home. His only medication was digitalis and aspirin.

On the morning of March 29, 1955, the patient ate his breakfast as usual and laid on his bed. His wife noted that his reactions were peculiar and that he had a "silly ex-



pression." I was able to reach the patient in five minutes and observed these actions. He seemed unresponsive although he did respond to painful stimuli and questions.

His answers, however, were irrelevant. The patient then had a grand mal convulsion and was given 7.5 grains of sodium amytal intravenously which terminated the convulsion



but there was marked excitement after the episode. He was observed in the hospital for two days. It was thought at that time that the patient had had a cerebral embolus arising from his heart. Amazingly, his blood pressure and pulse and cardiac size showed no change from his previous examination. The patient was placed on phenobarbital in small doses and he remained well, although unable to do any work of a constructive nature. He complained that he was "unable to think well" and that he was nervous a good deal of the time. His cardiac symptoms remained essentially unchanged until August of 1955 when he had a two or three day episode of chest pain, fever, and dyspnea. Electrocardiogram showed some changes in ST and T waves of Leads II, III, AVF and V4, V5, and V6 of a non-specific nature. The heart shadow on x-ray showed transitory enlargement.

The patient had another grand mal convulsion October 12, 1955. At that time the cardiac status was unchanged except that the electrocardiogram at that point showed left ventricular strain pattern with depressed ST segments of V4, V5, and V6.

The patient was readmitted on December 30, 1955, until January 5 for observation of chest pain. He was not acutely ill at that time. He responded promptly to 80 units of ACTH Gel intramuscularly. He had only very slight fever on admission. The patient again remained asymptomatic until April of 1956, when he was admitted for a period of five days. The electrocardiogram and chest x-ray did not show any change. We thought that this was an extremely mild episode of post-operative reaction.

Since that time the patient has been followed in the office with monthly Bicillin injections of 1,200,000 units. He is also receiving Mysoline, two tablets daily, one capsule of Dilantin, grains  $1\frac{1}{2}$  daily, and phenobarbital, grains 1 at bedtime.

He has been seen at various intervals by the operating surgeon and the internist in charge of his case in Oklahoma City. They have agreed with the diagnosis of post-operative reaction and the management in general. The patient has also

been seen by neurologists and psychiatrists. The electroencephalogram on two occasions showed definite spikes in the region of the left hemisphere and left occipital as well as the bi-occipital region. There was also abnormal buildup on hyperventilation in the range of the 4 to 5 second spikes. It was on the basis of this finding that the patient was thought to need both phenobarbital and Dilantin. He was on Dilantin three times daily, but because of skin rash, it was replaced by Mysoline.

The etiology of the patient's epileptic seizures has never been clear-cut. The patient gave a history of migraine headaches intermittently all of his life and had two severe episodes in January and May of 1954. On one occasion, he had an episode of blindness lasting several minutes. This occurred with one of his severe pounding, throbbing headaches. Since that time he has had no further headaches. In May, 1954, his episode consisted of weakness of the left side of his face for two weeks. At that time he was seen at Scott-White Clinic, and he was advised to have ligation of his femoral veins and it was advised also that he be on Dicumarol therapy. At that time, apparently, they thought that emboli were arising in the leg veins. It was the opinion of the consultants that tumor was unlikely. Scar tissue formation was thought to be a possibility following a thrombosis. Repeat electroencephalogram on December 20, 1955, showed no essential change. At the point of writing, the patient has had no further episodes of convulsions and he has continued on his anti-convulsant medicine.

The patient has been examined every six to nine months. His weight is unchanged. Blood pressure averages 150/90. Pulse remains irregular; at a rate of 80. The heart reveals a systolic murmur at the apex with a systolic click present. The murmur, as nearly as can be determined, has been unchanged since just after his mitral commissurotomy. No diastolic murmur can be heard. The lungs remain clear. There is usually slight sensitiveness in the abdomen but no localizing signs. Neurological examination is essentially negative. The patient has a number of complaints which are thought by several to be on a psychoneurotic basis. His

electrocardiogram shows auricular fibrillation with no primary T-wave changes. Chest x-ray reveals heart size to be essentially that of one and two years ago. GI series have shown no abnormalities.

### Discussion

Rheumatic fever has been termed the disease that "licks the joints, but bites the heart." This is certainly true in this case; there had been joint symptoms as a child that were not recognized as being serious, however, his entire life was changed by the episode of rheumatic fever that started in early childhood. The basic lesion of rheumatic fever is fibrinoid degeneration and necrosis of the collagen of connective tissue.<sup>1</sup> The fibrinoid lesion with the inflammatory cells which accompany it form the Aschoff body, which is the hallmark of rheumatic fever. Many and various tissues may be involved in the "rheumatic process" to include the heart (endocardium, pericardium and myocardium) blood vessels, brain, joints, subcutaneous tissue as well as the kidney and lung.<sup>2</sup>

Great strides have been made in the understanding of the pathogenesis, etiology, treatment and prevention of rheumatic fever. Although rheumatic fever is not an infectious disease, it is caused by a toxic or allergic reaction to beta hemolytic streptococcus infections that occur in the upper respiratory tract. The latent period between the infection in the throat and the rheumatic manifestations varies from 9 to 25 days.<sup>2</sup> The incidence of rheumatic fever seems to correlate closely with epidemics of certain strains of beta hemolytic streptococcus. Certain areas of the United States have a higher incidence of rheumatic fever which appear to be related to the colder climates. Some of the most perplexing problems in the solution of rheumatic fever control arise when one is faced with the high incidence of positive throat cultures for beta hemolytic streptococcus in which there is no clinical disease. It is generally agreed that all beta hemolytic streptococci should be eradicated, however, recent work by Cornfeld, Werner, et al<sup>3</sup> would cast doubt on the practicability of such programs. They found

a wide difference between the number of carriers and actual infections. Even in children with respiratory infections and positive culture there was difficulty in correlating the two. It is clinically well known also that many cases of rheumatic heart disease give no history of previous respiratory infection.

Penicillin is the most potent antibiotic against the beta-hemolytic streptococcus. It is recommended in definite terms by the American Heart Association for treatment and prophylaxis. This advance has been of widespread benefit in reducing the incidence of rheumatic fever and in preventing the reactivity of the disease in persons known to be susceptible to the disease.<sup>4</sup>

In general, rheumatic fever is most common in children and in those who seem to have what is thought to be an "inherited susceptibility." Rheumatic fever is one of the more difficult diseases to diagnose. It requires close correlation of history, physical examination, and laboratory studies. The clinical picture of rheumatic fever was studied and reported by Massell et al.<sup>5</sup> It compares in scope and findings with many other reports. Their studies were carried out on 490 patients under the age of 17. Chorea was observed in 23 percent of the patients. The incidence of the other principal manifestations of rheumatic fever, when cases of pure chorea were excluded was found to be: significant murmurs, 53 percent; pericarditis, 6.3 percent; congestive heart failure, 7.9 percent; prolongation of the P-R interval, 25 percent; subcutaneous nodules, 12 percent; erythema marginatum, 11 percent; fever, 89 percent; elevation of the erythrocyte sedimentation rate, 92 percent and elevation of the anti-streptolysin titer, 82 percent.

When one is faced with making a specific diagnosis of rheumatic fever, all of the major manifestations may be useful at one time or another. Murmurs that are definite and chorea are the most sure signs of rheumatic fever. Beyond these typical manifestations, the clinician must weigh carefully the importance of history, physical findings and laboratory reports. Many times the clinician is not able to observe directly



the joint involvement and it behooves him to obtain carefully the description of "leg pains," particularly when a murmur of doubtful significance is present. It is this author's feeling that just as much harm can be done by "over" diagnosing rheumatic fever as "under" diagnosing it. The stigmata and inconvenience that some patients have to endure from iatrogenic rheumatic heart disease can be as serious as the possible harm that is done to those mild cases that may have been incompletely diagnosed.

The most serious aspects of an attack of acute rheumatic fever are twofold: the immediate damage from congestive heart failure and the later effects of chronic valvular disease. Valvular disease is probably a result of scar tissue formation from the process of healing. All four valves of the heart may be involved with the disease. The most commonly involved is the mitral valve with resulting stenotic scarring and systolic regurgitation. It is with the damage to this valve that this paper most concerns itself.

Recent treatments of the acute rheumatic state have added to the accepted management of rest. Aspirin has been and is still used as an accepted treatment. The use of Adreno-corticotrophic hormone and adrenal steroids is enjoying popularity at this time and they are the most potent weapons that we have in the acute state of this disease. Those who report large series of cases in general reflect that the use of hormones shorten the "active phase" of the disease,<sup>7</sup> although it is important to point out that the complications of corticoids is greater than with aspirin. After the acute stage, treatment is directed at prevention of recurrent attacks by eliminating all beta-hemolytic streptococcus infections. As much caution should be used in advising a patient with known rheumatic fever as to physical activity as should be used in instructing the borderline case mentioned above. Life work, military service and child bearing should be discussed intelligently with the patient.

The progressive disability of the patient with mitral stenosis manifested by severe congestive heart failure, cardiac arrhythmias, hemoptysis, and embolization has been a

frustrating problem for clinicians until attempts to relieve the obstruction of the circulation at the stenotic orifice were successful. As more experience has been gained by the cardiologist, physiologist, radiologist, anesthetist and the cardiac surgeon, the selection of patients for the operation have been more carefully defined. Cardiac catheterization has been of great value in studying the hemodynamics involved.

With progressive scarring and narrowing of the mitral orifice there is a proportionate increase in pressure in the left auricle which is subsequently transmitted to the pulmonary vasculature. This pressure resistance leads to lessening of cardiac output. With the onset of right ventricular failure, the pressures in the right atrium and great veins becomes elevated. These changes have been calculated to occur when the critical area is approximately one square centimeter.

When pure mitral stenosis is present, the clinician and physiologist have little difficulty in establishing the diagnosis. When mitral regurgitation and stenosis co-exist, the problem becomes more difficult and important. Whereas the surgical technique for stenosis is quite advanced, a procedure for relief of regurgitation has not yet been as successful. Differentiation in difficult cases may be aided by analysis of pulmonary artery wedge and left atrial pressure pulse contours, as well as by analysis of indicator-dilution curves.<sup>8</sup>

Various classifications of patients with mitral stenosis have been suggested as a method of establishing criteria for mitral commissurotomy. Class I patients are those with typical auscultatory findings of apical presystolic murmur, loud first mitral sound and a low pitched diastolic rumble, but with little actual disability or symptoms. The Class IV patient is one usually described as bedfast with intractable heart failure who if not relieved will surely die. Grade II and III patients fit between those two extremes and are frequently difficult to evaluate by all and any means, but do present the most promising group for good operative risk and relief of disability. The patient in this case was thought to be a Class III candidate.

Careful pre and post-operative care are extremely important. The management of these patients is well reviewed by Goodyer and Glenn.<sup>9</sup> After operation, pulse rate and body temperature are increased for 1-4 days. There generally is remarkable increase in cardiac reserve, estimated by the relief of exertional dyspnea although hemodynamic studies may not vary from pre-operative findings. Circulatory complications are most often seen in the first week and consist of hypotension and acute congestive failure which are usually accompanied by fast ventricular rates in those with chronic auricular flutter and fibrillation. When cardiac failure persists after apparently adequate valvulotomy, the cause probably is persistent severe pulmonary vascular disease, other valvular abnormalities, recurrent rheumatic activity and recurring pulmonary embolization.

The usual signs of inflammatory reaction after operation are chest pain, fever, pleural effusion, pericarditis and elevated C-reactive protein for 3-10 days. If these symptoms continue or recur, they constitute the syndrome of pleuro-pericarditis after cardiomy. Usually these symptoms arise within a month of operation. The chest pain is pleuritic with pleural and pericardial effusions of varying degrees. It is interesting why these symptoms may recur at varying intervals over a period of several months. This case report concerns itself primarily with that perplexing problem. The syndrome resembles in many ways, acute rheumatic fever, acute benign pericarditis and the more recently recognized post-myocardial infarction syndrome. Apparently, the presence of this reaction does not affect the long-term results of the operation. Corticoid therapy seems to be effective in shortening the course of the reaction.

The late results of mitral commissurotomy are now receiving critical study as enough patients have been operated on and followed over a period of years. A review by Ellis and Harken<sup>10</sup> of 500 cases points out several important factors that seem to favor a good result. Seventy-eight percent of the patients surviving operation showed significant and usually persistent improvement over the period of observation, which aver-

aged 22 months. The factors which led to less good results were: (1) age over 40; (2) auricular fibrillation; (3) associated aortic valve disease; (4) associated mitral insufficiency of moderate degree or more; (5) a preoperative valve size of more than 1.0 sq.cm.; (6) a postoperative valve size of less than 2.5 sq.cm.; (7) calcification of the mitral valve. An additional benefit mentioned is the apparent protection of the patient from peripheral embolization, although peripheral emboli may still occur in patients who have had previous emboli. The estimated orifice measurement in this patient was 1.0 cm. by the operating surgeon. He noted no calcification and did not think that regurgitation was present. Although there was some question of cerebral emboli in this patient, which was later fairly well disproved, he has actually not had any embolic phenomena.

Another study of 60 patients, followed from two to five years<sup>11</sup> with predominant and symptomatic mitral stenosis, was compared with 11 patients with contraindications to operation, and three patients who refused operation. The total operative mortality was 15%. Sixty-seven percent of 51 survivors of operations exhibited improvement after operation which appeared to be sustained over the period of observation. In contrast, there was virtually no long term improvement in either this or other studies of patients not surgically treated. The patient in this report in spite of his prolonged disability from post-operative reactions appears to have sustained good result.

An even later report of 200 cases followed for five to eight years has summarized some of the recent thinking about the value of mitral commissurotomy.<sup>12</sup> In each, the original condition was mitral stenosis uncomplicated by any other significant valvular lesions. The "clearcut symptomatic relief from dyspnea, hemoptysis and edema did not necessarily correlate with any changes in murmurs or abnormal heart size. Indeed, some have used this type of evidence to support the contention that the relief obtained is of psychiatric origin. The authors do not think this tenable because any benefit obtained from "faith" would certainly be dissipated in a period of 5 to 8 years. They



orifice is 4 to 6 square centimeters and that it might be narrowed to 1.5 square centimeters with very little resulting specific cardiovascular symptomatology. It is further postulated that commissurotomy even if not complete is adequate to afford symptomatic relief without again producing significant changes in the electrocardiogram, murmur or heart size. They point out further that cardiac catheterization studies actually do record changes that would explain the symptomatic relief in these individuals.

They report the post-mitral commissurotomy syndrome as occurring in one of 10 patients, but have not observed that it has affected the over-all end result adversely. The patient in this report is "not quite sure" whether his operation was a "success"; however, he has had no further pulmonary edema or cyanosis and his heart contour has clearly been improved. He has shown no evidence of re-stenosis of his mitral valve, but in view of that possibility, he will be watched closely. In an analysis of 1,000 patients by Bailey, et al,<sup>13</sup> 22 had recurrent symptoms caused by re-stenosis. Six of the 22 had given evidence of clinical improvement for one or more years after the original operation but subsequently developed congestive heart failure and died. Necropsy revealed a severe degree of mitral stenosis due to refusion of the parts that had been separated surgically. In the other 16, re-operation was carried out because of the recurrence of symptoms and direct examination of the re-stenosed valves was possible.

Re-stenosis is attributed (1) to the rheumatic nature of the causative disease, (2) to the frequent inadequacy of surgical techniques customarily used and, (3) to the occasional extreme pathological deformation of the valve, which may prevent an adequate separation of the leaflets or which may amount to its transformation into a fibrous stricture. The authors reason that these cases are coming to light because only now has sufficient time elapsed to study the late results of commissurotomy. They urge combined right and left cardiac catheterization preoperatively and repeatedly when indicated to evaluate adequately the problem of re-stenosis. Any re-stenosis should

be reoperated and preferably by the right sided approach. This exposure permits a more complete separation of the valve elements and should reduce the incidence of re-stenosis in their opinion.

An interesting study by MacIntosh et al<sup>14</sup> gives another view of the cause for improvement or lack of improvement in mitral commissurotomy. The ventilatory response of the patients with mitral stenosis was measured by the oxygen ventilatory equivalent during steady state exercise. Elevated oxygen ventilatory equivalent values were found in all patients in whom the disease was clinical Grade II or greater. The degree of elevation correlated well with the functional disability of the patient, assessed according to clinical grading. Following mitral commissurotomy, patients exhibit a fall in oxygen ventilatory equivalent consistent with the clinical improvement. These authors feel that this affords a valuable tool for classification of patients with mitral stenosis and to evaluate the results of therapy, but is of no value in predicting the outcome of a case.

Pulmonary diffusing capacity determined during exercise by the steady state carbon monoxide technique was low in each patient with reduced exercise tolerance. No change in diffusing capacity was observed following operation. These results suggest the presence of irreversible lung damage in patients with mitral stenosis. It is postulated that this lung damage may be responsible for the failure of some patients to return to normal exercise tolerance following operation.

Such studies were not done in this case, but there have been several occasions in which it would have been helpful to know more precisely about pulmonary function.

### **The Migraine Syndrome**

Migraine headaches are very common with considerable disability to many people. They are not usually, however, considered as being of serious consequence. The patient herein described had quite typical migraine headaches. The classical descriptions of migraine attacks and their treatment are well

covered in the literature<sup>15</sup> and will not be repeated here. Our patient did have convulsive episodes which were quite obscure in etiology until careful studies seemed to help trace the difficulty to his past history of migraines. The convulsive episodes occurred after the commissurotomy and cerebral embolization was suspected immediately. At one time, long-term Dicumarol therapy was considered necessary. Adequate control of his seizures by anti-epileptic therapy for three years has been attained without the hazards and inconvenience of long-term Dicumarol therapy.

Considerable has been written about intermittent insufficiency of the cerebral arterial circulation. In one recent report<sup>16</sup> the author accepts the fact that occasional migraine attacks may be severe enough to result in cerebral infarction,<sup>17</sup> but points out that it is of rare occurrence. This case, it is thought, represents just such circumstances with resulting scar tissue formation in the cerebral cortex. It is also realized that migraine is considered to be an "epileptic equivalent" by many observers. Some of the vague complaints and bizarre emotional symptoms of this patient might well also be explained on the basis of migraine equivalent.

### Summary

The case of a 42 year old white male who had rheumatic fever in childhood and developed typical and "pure" mitral stenosis which progressed to a Grade III classification is presented. Mitral commissurotomy was performed without complication. The critical valve area was estimated at one square centimeter and mitral regurgitation was not thought to be present. Immediately post-operatively a reduction in heart size was noted which has been maintained for a period of over three years. Two weeks post-operatively, the patient developed fever, chest pain and evidence of pleural and precardial effusions. These symptoms lasted about one week but recurred at varying intervals so that a total of five major episodes were observed over a period of 18 months. The over-all result from operation

has been good with reduction in heart size and disappearance of the murmur of mitral stenosis. The symptomatic result as viewed by the patient has been difficult to evaluate. He has not shown any tendency to re-stenosis of the valve.

A discussion of acute rheumatic fever is presented to include etiology, prevention, treatment and pathogenesis of mitral stenosis. The problems related to operative selection, post-operative complications and late operative results are presented.

The patient in this review also had convulsive episodes that were initially thought to be due to emboli from the heart, but subsequent study lead to the diagnosis of cerebral scar tissue formation following a severe migraine episode. A short discussion of migraine headaches is presented.

### BIBLIOGRAPHY

1. Boyd, William: The Pathology of Internal Disease, Lea and Febiger, Philadelphia, Pa., 1950.
2. Tidwell, Robert A.: Complications of Rheumatic Fever, *Am. Jour. of Cardiology*, 1: 464, April, 1958.
3. Diehl, A. M., Lade, R. I., and Hamilton, T. R.: Epidemiology of Rheumatic Fever, *Am. Jour. of Cardiology*, 1: 423, April, 1958.
4. Cornfeld, D., Werner, G., Weaver, R., Bellows, M. T., and Hubbard, J. P.: Streptococcal Infection in a School Population: Preliminary Report, *Annals of Int. Med.*, 49: 1305, Dec., 1958.
5. Wood, H. F.: Prevention of Rheumatic Fever, *American Jour. of Cardiology*, 1: 456, April, 1958.
6. Massell, B. F., Fyler, D. C., and Ray, S. B.: The Clinical Picture of Rheumatic Fever, *Am. Jour. of Cardiology*, 1: 436, April, 1958.
7. Hiss, J. G. F.: Treatment of Rheumatic Fever, *Am. Jour. of Cardiology*, 1: 468, April, 1958.
8. Marshall, H. W., Connolly, D. C., and Wood, E. H.: Physiologic Considerations in the Selection of Patients for Mitral Commissurotomy, *Med. Clinics of N. America*, July, 1958.
9. Goodyer, A. V. N., and Glenn, W. W. L.: Management of Circulation, Inflammatory and Metabolic Complications of Mitral Valvulotomy, *New England J. Med.*, 257: 735, Oct. 17, 1957.
10. Ellis, Lawrence B., Harkin, Dwight B.: Factors Influencing Late Results of Mitral Valvuloplasty for Mitral Stenosis, *Ann. Int. Med.*, 43: 133, July, 1955.
11. Logan, Gordon A., Bruce, Robert A., Bergy, Gordon G., and Merendino, G. Alvin: Disability Two to Five Years after Mitral Commissurotomy: An Evaluation by Clinical Criteria and Exercise Tolerance, *Annals of Int. Med.* 47: 248, Aug., 1957.
12. Likoff, William, Uricchio, Joseph F.: Results of Mitral Commissurotomy, *J.A.M.A.*, 166: 737, Feb. 15, 1958.
13. Baily, Charles P., Goldberg, Harry and Morse, Dryden P.: Recurrent Mitral Stenosis, *J.A.M.A.* 136: 1576, April 27, 1957.
14. MacIntosh, D. J., Sinnott, J. C., Milue, I. C., and Reid, E. A. S.: Some Aspects of Disordered Pulmonary Function in Mitral Stenosis, *Annals of Int. Med.*, 49: 1294, Dec., 1958.
15. Ostfeld, A. M., Wolff, H. G.: Identification, Mechanisms and Management of the Migraine Syndrome, *Med. Clinics of N. Amer.*, Nov., 1958.
16. Clough, Paul W.: Intermittent Insufficiency of the Cerebral Arterial Circulation—Editorial, *Annals of Int. Med.* 49: 223, July, 1958.
17. Murphy, J. P.: Cerebral Infarction in Migraine, *Neurology*, 5: 359, 1955.

1202 Arlington, Lawton, Oklahoma



# Changing Concepts in Dermatology\*

THE PRIVILEGE of an audience of my peers provokes a sense of deep humiliation in me. Whereas to be asked to talk about the "Changing Concepts in Dermatology" makes me guarded lest I reveal the age and sclerosis of my cerebral vessels.

In talking about disease today, there is always a lingering disposition to say that it was very easy to discover new bacteria when Pasteur began doing his first memorable studies; or to describe a new dermatological disease when Robert Willan brought dermatology out of chaos; or to propound new physical laws when Benjamin Franklin gained immortality by flying a kite in a thunderstorm. To accept as a fact that all diseases have been described, and hence there is no need for the sterile case report or the application of new modalities for the study of old diseases, would make us all eclectics. It was this group which took only the good from that which had been done in the past, but who had no interest in the adaptation of modern techniques to learn the cause of many diseases of unknown etiology in their day.

\*Given at the Oklahoma State Dermatological Society Meeting, 4 May, 1959.

## ARTHUR C. CURTIS, M.D.

In 1925, Arthur C. Curtis, M.D., graduated from the University of Michigan Medical School where he is now Professor and Chairman of the Department of Dermatology.

Doctor Curtis is certified by both the American Board of Internal Medicine and the American Board of Dermatology. He is a member of the American Society of Clinical Investigation, the Central Society of Clinical Research, the American Dermatological Association and a Fellow of the American College of Physicians.

He is Past-President of the American Board of Dermatology and the American Academy of Dermatology and Syphilology.

Our predecessors were great clinicians. They had little to work with except their keen observations and carefully recorded notes. Yet they began a separation of disease states which exists unchanged in many important details to this very day.

Most had training in several disciplines, such as Johnathan Hutchinson, who was a skilled dermatologist, syphilologist, neurologist, ophthalmologist and surgeon; Erasmus Wilson, who was an anatomist, pathologist, dermatologist and Philatrist

(Cleopatra's needle) and Thomas Addison, who was first a dermatologist and then an expert in Internal Medicine.

During the waning years of the last century physiology had its beginning. Ehrlich has introduced tissue staining with the new AZO dyes, thus greatly enhancing histopathology while allergy, immunity, and antibodies became defined and biochemistry was separated from organic chemistry. With this background of new tools which could be used to study disease states, great strides were made in the understanding of disease in all fields. The clinician was still the strong individualist and dominant man in his field. Kaposi followed Hebra in Vienna; the French and English schools were strong. Boeck was in Oslo, Unna in Hamburg, Felix Pincus in Berlin, Jadassohn in Berne, and Bruno Bloch was in Zurich. The latter, a student of Jadassohn, combined a knowledge of chemistry, physics and bacteriology with a good clinical background. He undoubtedly could be called the father of modern dermatology. His work on the nature of melanin pigmentation in the human skin will immortalize him.

In this country White held the first Chair of Dermatology at Harvard. He later was succeeded by Bowen. Duhring became the head of Dermatology at Pennsylvania while George Henry Fox was at Columbia and the N. Y. P. G. School. Gilchrist held the Chair at both Hopkins and Maryland; Ormsby, Pusey, Montgomery and Hyde were in Chicago, Martin Engman was in St. Louis and Pollitzer at the N. Y. P. G. This group had been trained in Europe and hence those they stimulated to follow in their footsteps, such as George Mackee, Howard Fox, Udo Wile, Chargin, Abramowitz and Morrow, to name a few, likewise returned to the European centers. World War I interrupted the orderly sequence of training in the European centers, and World War II practically ruined them. As a result, centers were becoming excellent units for training of Dermatology and Syphilology in this country, and a few strong men did much to stimulate large numbers of excellent men whose training now was obtained in the USA. For example, Wile, at Michigan, who had succeeded

Breakey (an anatomist, and later a dermatologist after the war between the states), had as his first students Stokes, Senear and Kingery. Stokes developed the first Dermatology service at the Mayo Clinic, then left it in the able hands of Paul O'Leary to go to Pennsylvania, taking with him Loren Shaffer. Osborne went to Buffalo with Wende. At Pennsylvania, Stokes completed what Wile had begun, but never finished—an outstanding, modern text on syphilis written by an American. Stokes took Weideman, a pathologist and mycologist, into his Department, brought up Beerman and Pillsbury. The latter had both a basic and clinical training under the tutelage of Stokes, and when he succeeded him at Pennsylvania, was both a good clinician administrator and basic science researcher.

He built the Duhring laboratories, which today give to Pennsylvania an outstanding clinical and research unit. Gardner Hopkins, a bacteriologist-mycologist, was at Columbia, Senear at Illinois, and O'Leary at the Mayo Clinic. Sulzberger, the only European trained member of this group, succeeded Mackee at N. Y. P. G.

Times then changed. More and more cutaneous diseases were found to have systemic components, and Dermatology was rapidly becoming Cutaneous Medicine. Research and investigative activities mushroomed while clinical dermatology was de-emphasized in many centers. Like the pendulum which governs the progress of all movements, when started it may swing too far. To me, this is now happening in our own schools. In some, the administrators of the schools or the department heads have sought, as the directors of their dermatology divisions, men whose interest is entirely research medicine. Some of these men have little or no clinical dermatologic training, yet they are given the Chair and expected to teach students and Residents a field of diseases about which they know little. Undoubtedly they will contribute much to research, but they can do little for the teaching or stimulation of the student in the field of Dermatology. This is as bad a situation today as has been the older practice of employing a clinical dermatologist who comes



to the school to teach an hour, or at most, a half day a week.

The trend of modern medicine is towards full time or geographic full time departments. In smaller divisions, the latter plan is often used, so that the staff is in the school and is available during a large part or all of each day. This gives continuity of teaching to the students and Resident staff, while allowing participation by those in one department in the teaching programs of others. The chief of a department today must be a good clinician. He must also have had experience in and appreciate the value of research. His job as "chief" is to find not only the people who are interested in *research*, but the ways and means of subsidizing them, so that it can be done. The many disciplines required of the dermatological resident means that the chief of a

service can no longer be "all to everyone." There must be developed or employed those who are expert in the several sub-specialties of Dermatology, so that the training is well rounded in both its clinical and basic aspects. The pyramid then should have at its *top* the *clinician*, and not the basic-science expert. The clinician must also direct the completion of his department by adding people with other clinical interests than his own. He must also weld into this group individuals whose training is in fundamental research. When the pyramid has been completed, a well balanced and solid structure has been created. Only then may one shed a salty tear for the director. He now has become a chair polisher, and his office a bedlam.

University of Michigan Medical Center  
Ann Arbor, Michigan

For the latest  
in patient care

DALLAS in  
DECEMBER  
1-4

13th CLINICAL  
MEETING



FOR FULL INFORMATION WRITE  
CONVENTION SERVICES

535 N. DEARBORN STREET

CHICAGO 10, ILLINOIS

American Medical  
Association

A statistical study of perinatal mortality in Oklahoma hospitals which, because of this, loses its dullness as statistics and becomes a live appraisal of our own work

# Perinatal Mortality Rates in Oklahoma Hospitals

1956-57

REMARKABLE PROGRESS has been made in past years in the reduction of infant and neonatal mortality. The last twenty years in Oklahoma have brought a reduction in infant mortality (deaths under one year of age) from 57.1 to 25.5 and in neonatal mortality (under 28 days of age) from 32.8 to 18.2.<sup>1</sup> Control of infectious and communicable diseases contributed in large part to this reduction. Less progress has been made in the more difficult areas of birth injury, congenital malformations, and immaturity. The focus of interest and research has now been shifted to include more attention to factors associated with deaths of infants before or during delivery and the term "perinatal" has come into use to express a combination of fetal deaths and post-natal deaths of live-born infants.

For this study, perinatal deaths are defined to be deaths of live-born infants before the age of 28 days plus deaths of fetuses of 20 weeks or more gestation, and total births are the sum of live births and fetal deaths. The perinatal mortality rate used represents the number of perinatal deaths per 1,000 total births. This definition coincides with Perinatal Period II as defined in *A Guide for the Study of Perinatal Mortality and Morbidity* recently published by the Committee on Maternal and Child Care of the Council on Medical Service of the American Medical Association.

## Background

More than 96 per cent of total births in

JOHN H. SHACKELFORD, M.D.

G. R. RUSSELL, M.D.

MARGARET F. SHACKELFORD, M.S.

John W. Shackelford, M.D., is Director of Maternal and Child Health for the Oklahoma State Department of Health. After graduating from Tulane University School of Medicine in 1926, Doctor Shackelford was located in Greenville, Mississippi.

Doctor Shackelford is certified by the American Board of Preventive Medicine and Public Health. He is Associate Professor, Preventive Medicine and Public Health and Associate Professor, Department of Pediatrics at the University of Oklahoma School of Medicine.

Among the organizations of which Doctor Shackelford is a member are the American Public Health Association, the American College of Preventive Medicine and National Association of Maternal and Child Health Directors.

G. R. Russell, M.D., graduated from Western Reserve University School of Medicine in 1925 and returned to that school as a member of the Faculty of Medicine from 1928 to 1933. Doctor Russell's specialty is pediatrics and he is certified by the American Board of Pediatrics.

At the present time, Doctor Russell is Coordinator of Pediatrics at St. John's Hospital, Tulsa, Oklahoma. He is a member of the American Academy of Pediatrics and the Southern Medical Association. He is Past President of the Tulsa County Medical Society and Chairman of OSMA's Committee on Perinatal Problems and Maternal Mortality.

Margaret F. Shackelford, M.S., is Director of the Division of Statistics of the Oklahoma State Health Department and Assistant Professor of Bio-statistics at the University of Oklahoma School of Medicine.



Oklahoma now occur in hospitals.<sup>2</sup> The State-wide perinatal mortality rate, therefore, is primarily determined by perinatal mortality rates prevailing among hospital deliveries. While it was to be expected that there would be variation in these rates from hospital to hospital, the extent of this variation has never before been studied for Oklahoma.

The medical staffs of several hospitals have expressed interest in being able to compare the perinatal experience of their individual hospitals with that of other hospitals of comparable size. Basic information necessary for such detailed statistics was available from birth and death certificates filed with the Vital Statistics Office of the State Department of Health, but the hospital of birth had to be identified in statistical punch cards before these statistics could actually be compiled.

### Method

Information from each death record of an infant born alive in Oklahoma and dying before the age of 28 days was matched with the corresponding live birth record and a composite statistical card was prepared showing pertinent data from both records. Because of a voluntary interchange of birth data among states, it was possible to include the death in another state of an infant who was born in Oklahoma. Unmatched deaths, i.e., deaths for which no corresponding live birth certificates could be found or secured, were excluded from the study. These numbered 14 over the two-year period. Each fetal death certificate already provided birth and fetal death data together and no matching was necessary for these.

Hospitals were grouped for size according to annual average numbers of births as recommended nationally for studies of this kind.<sup>3</sup> Group I is made up of 7 hospitals having 1,000 or more births annually; Group II contains 15 hospitals having 500-999 births annually; Group III contains 32 hospitals having 100-499 births annually; and Group IV consists of 93 hospitals having less than 100 births annually. These are all licensed hospitals. Births in clinics and

physicians' offices were included in the "Not in Hospital" classification.

Only births actually occurring in the hospital were classified to the hospital for the study. An infant born elsewhere and brought to a hospital shortly afterwards was not included in the rate for that hospital even though death may have occurred in the hospital.

Information available for the study was limited to that reported on the certificates of live birth, death, and fetal death. Among these data, important variables affecting perinatal mortality are birth weight, length of gestation, sex, and race. Of these, birth weight and race are thought to be the most important. Perinatal rates have been computed for individual birth weight intervals, and rates adjusted statistically to eliminate differences due to birth weight distributions have been computed for comparison purposes. For individual hospitals in Group I having 5 per cent or more Negro births, rates adjusted statistically for birth weight and race distributions were computed. Similar rates adjusted for birth weight were computed for Group II hospitals individually. For individual hospitals in other groups, frequencies of births at both ends of the birth weight range were too small to permit similar adjustments and are reported as crude rates.

Birth weight intervals in terms of pounds and ounces have been used since that is the way in which weight is reported on certificates. The intervals have been set up to approximate 500 gram intervals beginning with the approximation to 1,000 grams. "Unknown" birth weights were relatively small in number, 1.3 per cent of the total number, and were distributed to birth weight intervals according to the reported period of gestation.<sup>2</sup>

### Place of Birth

Total births studied numbered 104,198 of which 102,823 were live births and 1,375 were fetal deaths. The largest proportion of these births, 35.8 per cent, occurred in Group III hospitals as shown in Table 1. Group I hospitals were the birthplaces of

Table 1. Live Births, Neonatal Deaths, and Fetal Deaths by Hospital Group  
Number and Per Cent, Oklahoma, 1956-1957

Hospitals and Annual Average No. Total Births	Live Births		Neonatal Deaths*		Fetal Deaths**		Total Births		Perinatal Deaths***	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Group I, 1,000 and over	32,691	31.8	621	32.9	342	24.9	33,033	31.7	963	29.5
Group II, 500-999	21,463	20.9	349	18.5	289	21.0	21,752	20.9	638	19.6
Group III, 100-499	36,773	35.8	649	34.4	525	38.2	37,298	35.8	1,174	36.0
Group IV, less than 100	6,507	6.3	125	6.6	106	7.7	6,613	6.3	231	7.1
Not in hospital	5,389	5.2	142	7.5	113	8.2	5,502	5.3	255	7.8
Total	102,823	100.0	1,886	99.9	1,375	100.0	104,198	100.0	3,261	100.0

\*Under 28 days of age

\*\*20 weeks or more gestation

\*\*\*Neonatal deaths plus fetal deaths

31.7 per cent of total births; Group II hospitals, 20.9 per cent; Group IV hospitals, 6.3 per cent; and not in hospital, 5.3 per cent. The percentage distribution of perinatal deaths among hospital groups was similar and is shown in the same table along with distributions of component parts of the perinatal mortality rate formula.

### Birth Weight

Of the total births, 7.7 per cent were immature by birth weight for the whole State. Figures for the United States for the same period of time are not yet available, but during the years 1952-1954, the corresponding proportion of immature infants among live births was 7.5 per cent.<sup>4</sup> In a study of

perinatal mortality in Iowa covering the years 1953-1957, immature births amounted to 6.2 per cent of total births.<sup>5</sup>

In Oklahoma, the percentage of births that were immature was highest in the births occurring outside hospitals. This was found to be true also in the Iowa study and may be attributed to the inclusion in this group of many precipitate deliveries. Among hospital deliveries, the highest proportion of immatures was in Group I hospitals having the largest numbers of deliveries annually. The lowest was found to occur in hospitals in Group III having 100-499 deliveries annually. Detailed percentage distributions by birth weight for all groups may be seen in Table 2.

Table 2. Percentage Distribution of Total Births by Birth Weight  
for Hospital Groups, Oklahoma, 1956-1957

Birth Weight	State Total	Group I	Group II	Group III	Group IV	Not in Hospital
Under 2 lb. 4 oz.	0.7	0.8	0.8	0.5	0.5	0.9
2 lb. 4 oz. - 3 lb. 4 oz.	0.8	0.8	0.8	0.7	0.7	1.1
3 lb. 5 oz. - 4 lb. 6 oz.	1.5	1.6	1.4	1.4	1.4	1.8
4 lb. 7 oz. - 5 lb. 8 oz.	4.7	5.2	4.6	4.3	5.1	5.1
5 lb. 9 oz. - 6 lb. 9 oz.	17.1	18.2	17.7	16.2	16.4	14.0
6 lb. 10 oz. - 7 lb. 11 oz.	37.3	38.2	38.1	37.4	34.9	30.4
7 lb. 12 oz. - 8 lb. 13 oz.	28.1	26.7	27.9	28.9	30.1	28.7
8 lb. 14 oz. - 9 lb. 14 oz.	8.2	7.3	7.4	8.7	9.0	12.3
9 lb. 15 oz. - 11 lb. 0 oz.	1.5	1.1	1.1	1.6	1.7	5.0
11 lb. 1 oz. and over	0.2	0.1	0.1	0.2	0.3	0.8
Immature (5 lb. 8 oz. or less)	7.7	8.4	7.7	7.0	7.7	8.9



Table 3. Comparison of Perinatal Mortality Rates in Oklahoma and Iowa Studies

	Oklahoma 1956-1957 White Only	Iowa <sup>5</sup> 1953-1957
Crude rates	29.5	28.5
Adjusted rates*	28.2	26.9
Rates by birth weight:		
Under 2 lb. 4 oz.	905.1	922.6
2 lb. 4 oz. - 3 lb. 4 oz.	653.4	670.6
3 lb. 5 oz. - 4 lb. 6 oz.	293.6	284.2
4 lb. 7 oz. - 5 lb. 8 oz.	84.2	82.0
5 lb. 9 oz. - 6 lb. 9 oz.	20.9	20.9
6 lb. 10 oz. - 7 lb. 11 oz.	10.2	9.5
7 lb. 12 oz. - 8 lb. 13 oz.	9.4	6.4
8 lb. 14 oz. - 9 lb. 14 oz.	9.6	8.1
9 lb. 15 oz. and over	30.9	22.6

\*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.

### Mortality

The 1956-1957 perinatal mortality rate for the State was 31.3 deaths per 1,000 total births. There is no exactly comparable rate from another period of time which could be used to measure possible change, nor is a comparable national rate yet available. The corresponding rate from a study in Iowa, covering the years 1953-1957 was 28.6.<sup>5</sup> Because the non-white population constitutes less than one per cent of the total in Iowa,

the most nearly comparable rates in Oklahoma would be those pertaining to the white population alone. Such a comparison is shown in Table 3, where Oklahoma's white perinatal mortality rate is shown to be 29.5. Weight adjusted rates still show more favorable mortality in Iowa. The effect of variables other than weight on this difference cannot be determined from available data.

Crude perinatal mortality rates of Oklahoma Group I and Group II hospitals were below the State rate, being 29.2 and 29.3, respectively, and those of the other groups were higher. The highest rate was found to be 46.3 among deliveries occurring outside hospitals. These rates are shown in Table 4.

The relationship between birth weight and mortality is apparent in Table 4. Highest rate of loss was in the infants weighing less than two pounds four ounces. As birth weight increased, the mortality rate decreased, reaching a low point, State-wide, in infants weighing seven pounds twelve ounces to eight pounds thirteen ounces. Further increases in birth weight were associated with increasing mortality rates. Weight specific mortality rates are shown also in Table 4 for each hospital group.

It was pointed out in the previous section that there was variation from one hospital

Table 4. Perinatal Mortality Rates for Hospital Groups Oklahoma, 1956-1957

	State Total	Group I	Group II	Group III	Group IV	Not in Hospital
Crude rates	31.3	29.2	29.3	31.5	34.9	46.3
Adjusted rates*	28.6	25.2	25.5	30.9	34.1	40.1
Rates by birth weight: <sup>2</sup>						
Under 2 lb. 4 oz.	886.4	893.7	923.5	887.2	944.4	673.5
2 lb. 4 oz. - 3 lb. 4 oz.	645.5	605.5	639.5	680.1	711.1	627.1
3 lb. 5 oz. - 4 lb. 6 oz.	287.3	269.3	229.3	311.8	391.3	340.0
4 lb. 7 oz. - 5 lb. 8 oz.	81.4	62.0	79.1	92.8	98.3	124.1
5 lb. 9 oz. - 6 lb. 9 oz.	21.5	18.4	17.1	23.6	25.0	45.6
6 lb. 10 oz. - 7 lb. 11 oz.	11.2	9.3	9.5	12.5	14.7	18.0
7 lb. 12 oz. - 8 lb. 13 oz.	9.7	8.8	7.6	10.0	10.0	20.9
8 lb. 14 oz. - 9 lb. 14 oz.	11.2	6.2	11.2	13.6	16.8	13.3
9 lb. 15 oz. - 11 lb. 0 oz.	22.7	5.3	29.8	29.0	35.7	21.8
11 lb. 1 oz. and over	117.4	190.5	107.1	122.0	55.6	69.8
Per cent Negro births	8.8	11.5	5.2	5.7	5.3	31.9

\*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.

\*\*Rates based on less than 50 total births are shown in *italics*.

group to another in proportional birth weight distribution of infants. The effect of this variation on crude rates has been eliminated statistically in the adjusted rates shown below the crude rates in Table 4. These adjusted rates are the perinatal mortality rates which would have prevailed if the groups had had exactly the same birth weight distributions. To this extent, they are comparable from one to the other, but they are not comparable with the crude rates. Differences in proportion of Negro births also affect both crude rates and weight adjusted rates. Although adjustment for race composition was not made for this comparison, the percentages of Negro births in each group are shown on the last line of the table as an aid to interpretation. These percentages are very nearly equal for Groups II, III, and IV, but the percentage was higher for Group I hospitals, 11.5 per cent, and highest in deliveries outside hospitals, 31.9 per cent. Since Negro perinatal mortality is higher than white perinatal mortality, greater proportions of Negro births would tend to increase the total perinatal mortality.

It appears that perinatal mortality experience was most favorable in the two hospital groups containing hospitals with more than 500 births annually. These hospitals would be expected to have the most complete and specialized facilities for maternal

and newborn care. The weight adjusted rates for these groups of hospitals were nearly the same and both were below the State-wide rate. On the other hand, weight adjusted rates for the groups containing hospitals having less than 500 births annually were higher than the State-wide rate and that for hospitals having less than 100 births annually was the highest of all the hospital groups. These differences parallel those found in a study of neonatal mortality in hospitals of Upstate New York, covering the years 1950-1954.<sup>6</sup>

### Group I Hospitals

Table 5 shows crude perinatal mortality rates, weight and race adjusted rates, and weight specific rates for the seven Group I hospitals individually. These hospitals are identified only by letters of the alphabet which were assigned in no particular order. As an aid toward caution in interpreting differences, rates by specific birth weight intervals have been shown in italics when the base for the rate was less than 50 total births.

Crude perinatal rates ranged from a low of 21.8 to a high of 44.1 with the remaining rates lying between 25.9 and 30.3. The range of crude rates in hospitals of the same size in Iowa was 20.4 to 40.8.<sup>5</sup> Adjusted rates are shown on the line below the crude rates. Rates for all hospitals were weight adjust-

Table 5. Perinatal Mortality Rates for Group I Hospitals  
(1,000 or More Births Annually)  
Oklahoma, 1956-1957

	Hosp. A	Hosp. B	Hosp. C	Hosp. D	Hosp. E	Hosp. F	Hosp. G
Crude rates	27.0	26.3	30.3	44.1	21.8	25.9	27.2
Adjusted rates*	23.6	24.8	24.7	42.0	22.2	25.2	22.7
Rates by birth weight:**							
Under 2 lb. 4 oz.	750.0	866.7	816.7	828.6	1000.0	961.5	975.6
2 lb. 4 oz. - 3 lb. 4 oz.	733.3	500.0	500.0	805.6	714.3	600.0	564.5
3 lb. 5 oz. - 4 lb. 6 oz.	189.2	343.8	269.8	352.3	209.3	271.6	233.9
4 lb. 7 oz. - 5 lb. 8 oz.	26.1	33.3	60.8	71.4	61.6	81.7	65.8
5 lb. 9 oz. - 6 lb. 9 oz.	19.5	10.6	19.4	30.5	17.9	12.4	15.8
6 lb. 10 oz. - 7 lb. 11 oz.	7.3	12.6	10.8	14.0	6.1	6.8	8.1
7 lb. 12 oz. - 8 lb. 13 oz.	14.3	9.1	8.3	17.3	3.4	12.3	4.8
8 lb. 14 oz. - 9 lb. 14 oz.	—	11.4	8.4	16.9	4.3	2.5	3.8
9 lb. 15 oz. and over	62.5	43.5	32.6	54.5	—	26.0	—

\*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.

\*\*Rates based on less than 50 total births are shown in *italics*.



ed and those for the four hospitals having five per cent or more Negro births were also adjusted for race. The adjusted rates for six of the hospitals were clustered between 22.2 and 25.2 and the differences among them were not statistically significant. However, the seventh hospital had an adjusted rate of 42.0, a difference from all the others large enough to be statistically significant.

In addition to these variables selected from those reported on birth and death certificates which are related to perinatal mortality, there are other important variables which would have to be considered in a careful evaluation of differential rates in hospitals. Procedures and practices associated with delivery and hospitalization are, of

course, among these. Others are the duration and quality of prenatal care, general health, nutrition, housing, and all the socioeconomic factors affecting survival of the individual. Wells, Greenberg, and Donnelly, in a paper giving some preliminary results of the North Carolina Fetal and Neonatal Death Study, identified a number of these factors which were associated with significant differences in mortality.<sup>7</sup> Studies in England also point out that social class may be a very important variable.<sup>8</sup>

### Group II Hospitals

Perinatal mortality rates for Group II hospitals individually are shown in Table 6. These hospitals are also identified only by

Table 6. Perinatal Mortality Rates for Group II Hospitals  
(500-999 Births Annually) Oklahoma, 1956-1957

	Hospitals							
	H	I	J	K	L	M	N	O
Crude rates	33.9	33.4	31.3	45.1	25.1	22.2	19.1	43.4
Adjusted rates*	28.8	31.6	25.1	33.9	26.7	18.0	19.0	30.2
Rates by birth weight:**								
Under 2 lb. 4 oz.	916.7	1000.0	1000.0	882.4	1000.0	555.6	1000.0	888.9
2 lb. 4 oz. - 3 lb. 4 oz.	666.7	750.0	666.7	600.0	583.3	454.5	357.1	727.3
3 lb. 5 oz. - 4 lb. 6 oz.	206.9	315.8	178.6	333.3	173.9	176.5	181.8	187.5
4 lb. 7 oz. - 5 lb. 8 oz.	117.6	146.7	45.4	50.8	26.7	76.9	63.5	131.3
5 lb. 9 oz. - 6 lb. 9 oz.	16.8	23.9	10.8	33.6	21.3	9.2	11.5	16.2
6 lb. 10 oz. - 7 lb. 11 oz.	11.9	7.9	10.9	14.2	14.2	7.0	7.4	8.3
7 lb. 12 oz. - 8 lb. 13 oz.	11.5	8.6	5.3	16.1	7.7	7.0	4.8	12.9
8 lb. 14 oz. - 9 lb. 14 oz.	10.1	—	37.6	13.2	29.0	—	—	18.3
9 lb. 15 oz. and over	—	—	41.7	111.1	38.5	—	—	76.9

	Hospitals						
	P	Q	R	S	T	U	V
Crude rates	16.5	28.6	30.6	30.2	24.3	32.0	19.7
Adjusted rates <sup>*</sup>	21.0	25.1	26.8	27.7	24.1	28.9	23.1
Rates by birth weight: <sup>**</sup>							
Under 2 lb. 4 oz.	800.0	1000.0	916.7	944.4	888.9	1000.0	1000.0
2 lb. 4 oz. - 3 lb. 4 oz.	600.0	555.6	615.4	1000.0	714.3	750.0	750.0
3 lb. 5 oz. - 4 lb. 6 oz.	357.1	300.0	272.7	466.7	111.1	105.3	384.6
4 lb. 7 oz. - 5 lb. 8 oz.	56.6	98.0	58.0	65.6	55.6	87.0	76.9
5 lb. 9 oz. - 6 lb. 9 oz.	4.5	10.5	25.1	14.4	26.2	17.2	6.0
6 lb. 10 oz. - 7 lb. 11 oz.	2.0	11.2	10.1	5.8	8.4	13.3	8.2
7 lb. 12 oz. - 8 lb. 13 oz.	5.6	—	7.1	4.9	7.4	12.8	—
8 lb. 14 oz. - 9 lb. 14 oz.	—	19.2	18.3	9.0	—	6.5	—
9 lb. 15 oz. and over	153.8	—	—	—	69.0	83.3	—

\*Adjusted to birth weight distribution of total hospital births, Oklahoma, 1956-1957.

\*\*Rates based on less than 50 total births are shown in *italics*.

letters of the alphabet assigned in no particular order. As in Table 5, rates shown in italics for specific birth weight intervals indicate that the base for the rate was less than 50 total births.

Crude rates ranged from a low of 16.5 to a high of 45.1. The comparable range from the Iowa study was 21.4 to 37.8.<sup>5</sup> Rates adjusted to eliminate differences due to birth weight distributions are shown on the line below the one showing crude rates in Table 6. Adjusted rates for hospitals of this size, like those for the largest hospitals, covered a smaller range from a low of 18.0 to a high of 33.9, with individual hospitals distributed fairly evenly through this range. As pointed out in the discussion of rates for Group I hospitals, proportions of Negro to white births, service patients to private patients, and other socio-economic variables contributed in unknown amounts to differences among hospitals.

#### Group III Hospitals

Still greater variation in crude perinatal rates from one hospital to another was found among the 82 Group III hospitals. Some amount of increased variation was to be expected because of the smaller numbers of births involved. Weight specific perinatal rates and weight adjusted rates were not computed for these hospitals having 100-499 births annually.

The range of crude rates for these hospitals was from a low of 9.4 perinatal deaths per 1,000 total births to a high of 56.4. From the Iowa study, the comparable range was 11.3 to 57.3.<sup>5</sup> The distribution of hospitals with respect to perinatal rates is shown in Table 7. Sixty of these hospitals, 73.2 per cent of the total, had rates which fell between 20 and 44, or roughly within the ranges of crude rates for the other two hospital groups already discussed. The rates for eleven hospitals were 45 or higher.

#### Group IV Hospitals

Perinatal mortality rates were not computed individually for hospitals having fewer than 100 births annually. However, data

Table 7. Distribution of Perinatal Mortality Rates for Group III Hospitals (100-499 Births Annually) Oklahoma, 1956-1957

Crude Perinatal Rate	Group III Hospitals	
	Number	Per Cent
Less than 10	1	1.2
10 - 14	4	4.9
15 - 19	6	7.3
20 - 24	9	11.0
25 - 29	14	17.1
30 - 34	19	23.2
35 - 39	14	17.1
40 - 44	4	4.9
45 - 49	5	6.1
50 - 54	4	4.9
55 and over	2	2.4
Total	82	100.1

necessary to do so were tabulated and are available.

#### Summary

Information shown on birth, death, and fetal death certificates filed with the State Department of Health has been used to compile perinatal mortality rates for groups of hospitals according to size as determined by the annual average number of total births, and for individual hospitals having 100 or more births annually. For the larger hospitals, rates were computed for specific birth weight intervals, and rates adjusted for differences in weight and race distributions were computed where numbers were of sufficient size to justify these refinements.

Variations in rates have been pointed out and discussed although it was not possible from available data to explore many important variables which have an effect on perinatal mortality. Differences from hospital to hospital do exist. To learn the reasons for these differences will require special study, collecting and taking into account information on all important related factors.

On the basis of information in the present study, it appears that perinatal rates in the larger hospitals having more complete and



specialized facilities and services are more favorable than those in smaller hospitals.

Since deaths of infants up to 28 days of age have been included and assigned back to the hospital in which the delivery took place, this study affords some hospital staffs the first opportunity to learn something about total mortality in infants born in their hospitals even when death occurred after release from the hospital.

### Conclusion

Perinatal mortality studies will only partly fill the need for more information concerning the failures of pregnancies to produce living infants free from physical or mental defects. Also of prime importance is the study of perinatal morbidity and all of its associated factors. It is hoped that the limited study of mortality just summarized will encourage detailed studies of perinatal mortality and morbidity on a local basis. It is equally as important to study factors associated with low perinatal rates as it is to study those associated with high perinatal rates, so that areas of differences

may be identified and so that knowledge gained may be pooled for the benefit of all.

The identities of individual hospitals will remain confidential with the State Department of Health. However, officials may obtain data pertaining to their own hospitals upon request.

### REFERENCES

1. Public Health Statistics, State of Oklahoma, Part II, Births and Deaths, Published Annually, Oklahoma State Department of Health, Oklahoma City, Oklahoma.
2. Public Health Statistics of Oklahoma, Fourth Quarter, 1958, Oklahoma State Department of Health, Oklahoma City, Oklahoma.
3. Suggested Tabulations of Statistics on Birth Weight and Related Characteristics for Live Births and Neonatal Deaths, Joint Statement of Public Health Conference on Records and Statistics, Association of Maternal and Child Health and Crippled Children Directors, and Children's Bureau and National Office of Vital Statistics of U. S. Department of Health Education, and Welfare, 1952, Washington, D.C.
4. Births and Neonatal Deaths by Birth Weight, 1952-1954, Vital Statistics, Special Reports, Volume 47, No. 1, U. S. Department of Health, Education, and Welfare, Public Health Service, National Office of Vital Statistics, December 16, 1957, Washington, D.C.
5. Natal Statistics, Iowa, 1953-1957, mimeographed report of Iowa State Department of Health, Des Moines, Iowa.
6. Yankauer, A. and Allaway, N. C.: An Analysis of Hospital Neonatal Mortality Rates in New York State. A.M.A. Journal of Diseases of Children, 95: 240-244 (March) 1958.
7. Wells, H. B., Greenberg, B. G., and Donnelly, J. F.: North Carolina Fetal and Neonatal Death Study, I—Study Design and Some Preliminary Results. American Journal of Public Health, 48: 1583-1595 (December) 1958.
8. Morris, J. J., Heady, J. A., and others: Social and Biological Factors in Infant Mortality. Lancet 1: 343-349 (February 12) 1955.

3400 N. Eastern, Oklahoma City, Oklahoma

BATH, *n.* A kind of mystic ceremony substituted for religious worship, with what spiritual efficacy has not been determined.

The man who taketh a steam bath  
He loseth all the skin he hath,  
And, for he's boiled a brilliant red,  
Thinketh to cleanliness he's wed,  
Forgetting that his lungs he's soiling  
With dirty vapors of the boiling.

Richard Gwow

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

# A Clinical Study of Hypothermic Perfusion

**PHYSIOLOGIC STUDIES** pertaining to a patient who underwent hypothermic perfusion will be presented and pertinent features discussed (Figures 1-10).

*Technique:* The perfusion apparatus was a DeWall Heart-Lung Machine<sup>1</sup> modified for rapid cooling and warming of blood. Heat exchange was accomplished by two devices, a stainless steel spiral<sup>\*\*</sup> which was inserted in the mayon helix and stainless steel tubing<sup>\*\*\*</sup> placed in the venous reservoir.<sup>2</sup> Electroencephalogram, electrocardiogram (lead 111), arterial blood pressure, and peripheral oxygen saturation were continuously traced with the Electronics for Medicine Research Recorder. The mid-esophageal temperature was monitored with a Tele-Thermometer.

## Clinical Data

A 32 year old white man with an interatrial septal defect and pulmonary hypertension (Table 1), was subjected to hypothermic perfusion at a flow rate of 20ccs/Kg. of body weight on May 29, 1959. Hypothermia was accomplished by external cooling during the preparatory phase<sup>\*\*\*</sup> and internal cooling during the perfusion. At 30° C, the aorta was clamped distal to the coro-

Nazih Zuhdi, M.D.                      John Montroy, M.D.  
Allen Greer, M.D.                      Robert Redmond, M.D.  
John Donnell, M.D.                      John Carey, M.D.  
Garman Kimmell                      David Geigerman, M.D.  
Bill McCollough, M.D.\*\*\*\*              Carl Krieger, M.D.

*From the Cardiovascular Section at Mercy Hospital, Oklahoma City, Oklahoma. Supported in part by a grant from the Oklahoma State Heart Association.*

nary ostia for fifteen minutes during the repair of the interatrial defect under direct vision. At 27.5° C, internal and external warming were begun. The patient responded promptly from his anesthetic and the postoperative course was uneventful except for a short period of auricular fibrillation on the third postoperative day.

	Oxygen saturation Percentage	Pressure (mm Hg.)
Inferior vena cava	64	—
Superior vena cava	60	—
Right atrium	76	13/8
Right ventricle	77	65/3
Pulmonary artery	76	55/35
Pulmonary artery (wedge)	99	14/10

Table 1. Right heart catheterization data

\*Suggested by Lamya Zuhdi.

\*\*Suggested by Garman Kimmell.

\*\*\*That external cooling phase is no more used, at present.

†Designed and fabricated by Kimray, Inc.

\*\*\*\*Fellow in Cardiovascular Research.



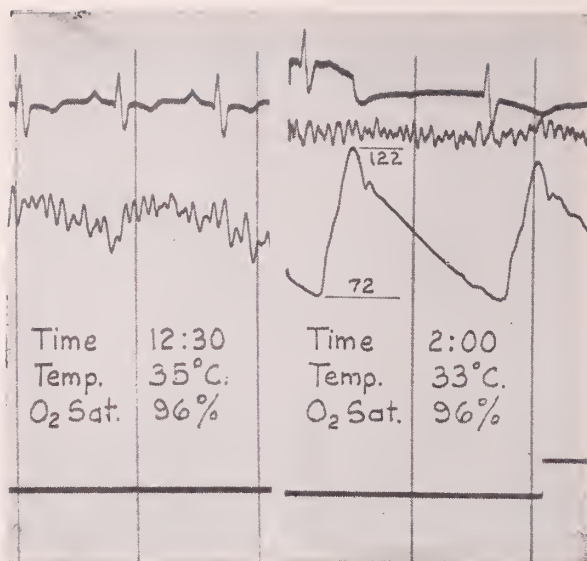


FIGURE 1

FIGURE 2

Figure 1. Both ECG and EEG at 35° C were similar to those seen prior to hypothermia.

Figure 2. There was slowing of the heart at 33° C. Repolarization was delayed and atrial voltage decreased. The left internal mammary artery pressure was 122/72 mm Hg. and peripheral oxygen saturation 96%. The EEG was not markedly altered.

### Discussion

One of the major problems in hypothermia is the occurrence of fibrillation at a temperature at which tissue oxygen demand is still high. If oxygenated blood is supplied to the body, ventricular fibrillation loses its deadly significance. Gollan<sup>3,5</sup> and Brown and his associates<sup>4</sup> have shown the safety of combining hypothermia and total body perfusion. Brown used a mixture of cardioplegic drugs to arrest the heart and Gollan has demonstrated the feasibility of only clamping the aorta, distal to the coronary ostia. We have obtained consistent survival after 30 minutes of aortic occlusion and right ventriculotomy at 20° C in dogs subjected to hypothermic perfusion.<sup>6</sup> At still lower temperatures the perfusion was successfully stopped for 45 minutes.

The ventricles continued to beat and the ECG promptly reverted to its preoperative characteristics, despite fifteen minutes of aortic occlusion between 27.5° and 31° C in this patient. The arterial blood pressure, the peripheral oxygen saturation, and the

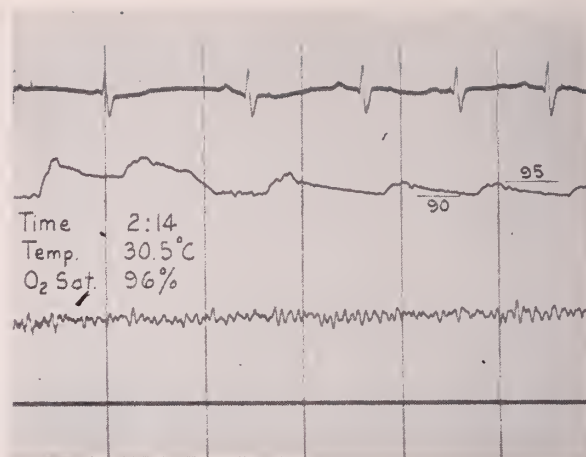


FIGURE 3

Figure 3. Two minutes after perfusion and internal cooling, at 30.5° C, and synchronous with the occlusion of the vena cavae, there occurred a primary T wave change toward the isoelectric line. The pulse pressure decreased rapidly and cardiac rate increased when the venae cavae were occluded. The peripheral oxygen saturation remained at 96%. The EEG was essentially unchanged.

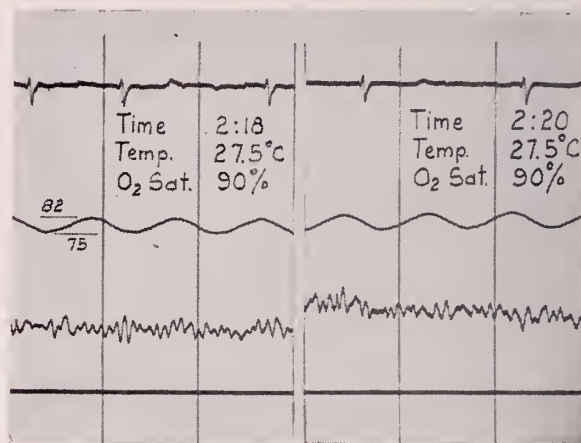


FIGURE 4

FIGURE 5

Figure 4. The major effect on the ECG was a decrease in voltage with a positive late T wave deflection, at 27.5° C and four minutes after clamping the aorta. There were multifocal P waves with A-V dissociation. The internal mammary artery pressure under total body perfusion was 82/75 and showed the sinusoidal wave of the splanchnic pump. The peripheral oxygen saturation was 90%. The EEG remained essentially unchanged.

Figure 5. Six minutes after clamping the aorta and eight minutes after the beginning of internal cooling, the ECG continued to show low voltage and a late positive T wave. Repolarization had become progressively prolonged. Bradycardia was more evident. The other variables remained essentially unchanged. The same picture persisted throughout the period of aortic occlusion.

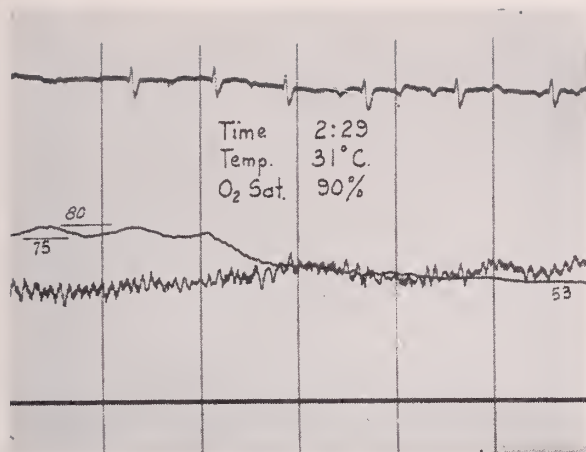


FIGURE 6

Figure 6. The aortic clamp was removed after fifteen minutes of occlusion. The cardiac rate increased almost immediately. The conduction pattern was variable. The P waves became more recognizable and inverted and A-V dissociation continued. The blood pressure dropped from 80/75 to 53 mm Hg. with almost no pulse pressure. Possibly this effect resulted from the dilatation of heart chambers and coronary vessels acting as a tidal basin. The other variables were not significantly altered.

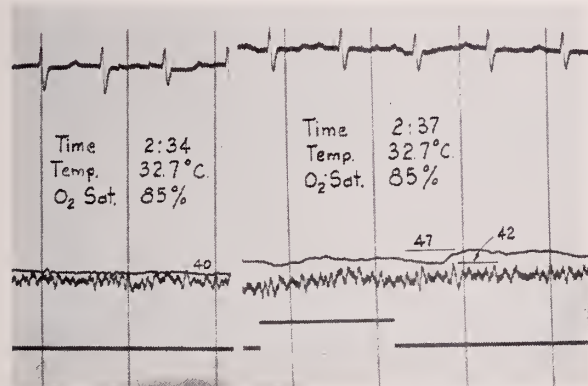


FIGURE 7

Figure 7. Five minutes after unclamping the aorta (with the venae cavae still clamped) the cardiac rate increased and the QRS complexes increased in voltage. There was essentially no pulse pressure. The peripheral oxygen saturation was 85%. The EEG was unchanged.

Figure 8. The superior vena cava was opened seven minutes following unclamping of the aorta. The ECG was essentially unchanged. The arterial pulse wave reappeared with a blood pressure of 47/42. The peripheral oxygenation and EEG were not altered.

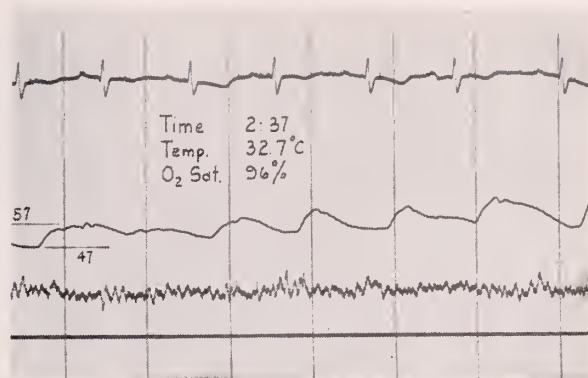


FIGURE 9

Figure 9. A few seconds after figure 8 was recorded the inferior vena cava was unclamped. The blood pressure increased within a few seconds from 57/47 to 85/58. Oxygenation rapidly returned to 96%.

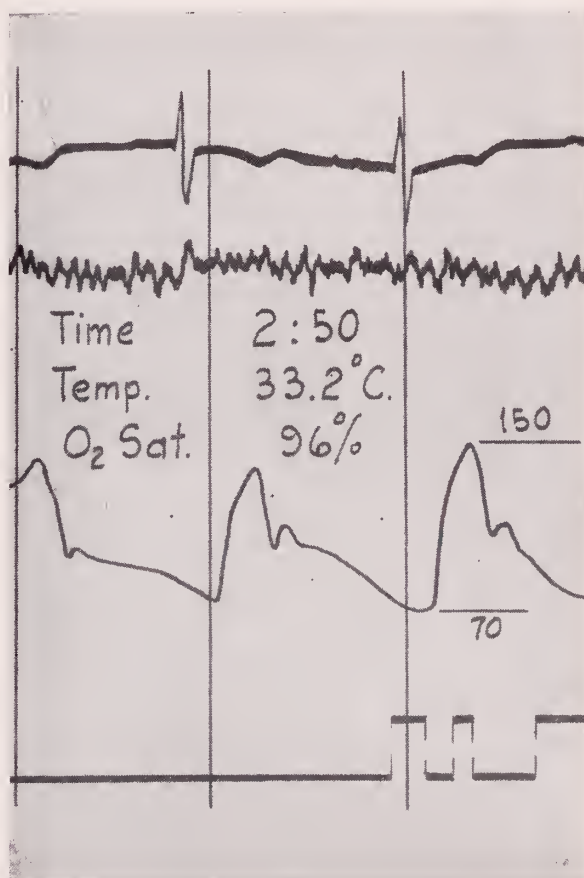


FIGURE 10

Figure 10. The ECG, EEG, and peripheral oxygenation were not markedly changed. The blood pressure was recorded at reduced sensitivity and was 150/70. Other than a return of the ECG to the pre-operative contour, there were no significant changes during the warming period.



cerebral function as manifested by EEG records were adequate throughout the procedure.

The devices used for rapid cooling and warming of blood are of such a nature that the priming volume required in a DeWall oxygenator is lowered without altering its basic safety features. The low flow and the prolonged aortic occlusion help decrease the total amount of blood and simplify open heart surgery. The preoperative, operative, and postoperative amount of blood used including priming of the machine in this 75 Kg. patient was 8 pints.

#### Summary

The clinical and physiological data of a 30 year old man who underwent hypothermic perfusion are presented and the pertinent features discussed.

#### REFERENCES

1. Zuhdi, N., Carey, J., Greer, A., Johnson, P., and Faggella, M.: Experimental Background for Open Heart Surgery at the University Hospital, Oklahoma City, Oklahoma, J. Okla. Med. Assn. 52: 15-17, 1959.
2. Zuhdi, N., Kimmell, G., Greer, A., Montroy, J., and Carey, J.: A System for Hypothermic Perfusion, J. Thor. Surg. In Press.
3. Gollan, F., Hamilton, E., and Meneely, G.: Consecutive Survival of Open Chest Hypothermic Dogs After Prolonged By-pass of Heart and Lungs by Means of a Pump-oxygenator, Surgery 35: 88, 1954.
4. Brown, I., Jr., Smith, W., Young, G., and Sealy, W.: Experimental and Clinical Studies of Controlled Hypothermia Rapidly Produced and Corrected by a Blood Heat Exchanger During Extracorporeal Circulation, J. Thoracic Surg. 36: 497-505, 530-533, 1958.
5. Gollan, F., Phillips, R., Jr., Grace, J. T., and Jones, R. M.: Cardiac Arrest in Dogs Below 13° C Without Ventricular Fibrillation, Fed. Proc. 14: 60, 1955.
6. Zuhdi, N., Greer, A., Kimmell, G., Montroy, J., and Carey, J.: Consistent Survival in Dogs after 30 Minutes of Aortic Occlusion and Right Ventriculotomy at 20° C (To be published).

Thanks are due for their unselfish help to Sister Mary Alvera, Modine Pierce and Ann Boden.

Nazih Zuhdi, M.D.  
430 N.W. 12, Oklahoma City, Oklahoma.

#### TWENTY-NINTH

#### Annual Fall Conference

## OKLAHOMA CITY CLINICAL SOCIETY

Biltmore Hotel

Oklahoma City

OCTOBER 26, 27, 28, 1959

#### GUEST SPEAKERS

Robert H. Barter, M.D.

John A. Campbell, M.D.

Wm. M. Christopherson, M.D.

George M. Haik, M.D.

M. Digby Leigh, M.D.

Daniel W. Lewis, M.D.

H. Relton McCarroll, M.D.

Robert M. Moore, M.D.

Roy T. Parker, M.D.

Frederick C. Robbins, M.D.

Sam H. Sanders, M.D.

John H. Talbott, M.D.

Gershon J. Thompson, M.D.

Rupert B. Turnbull, M.D.

J. Walter Wilson, M.D.



### Message from the Dean

The University of Oklahoma Medical Center, as an institution dedicated to serving the physicians and people of the state of Oklahoma, has many responsibilities. Its primary purpose is to provide an opportunity for the young people of Oklahoma to prepare for professional careers in medicine and the allied health sciences, which include nursing, dietetics, social service, physical therapy, medical and x-ray technology and cyto-technology. Such regularly scheduled courses do not represent all of the avenues of learning offered by the University Medical Center. Advances in the medical sciences have made it desirable to have special training and research programs to stimulate the use of modern techniques in medical practice and scientific research. The Medical Center has a responsibility to translate recent discoveries into practical use by physicians and scientists for the betterment of the people of Oklahoma.

Development of special training programs for such purposes has required support by grants from voluntary health agencies, foundations, the National Institutes of Health and industry. In 1947 the nationally available medical research funds totaled \$15 million each from philanthropic agencies and the federal government. Industry contributed \$35 million. A decade later the total from all these sources had increased nearly five times. By utilizing funds of this nature, medical teaching centers have been able to develop a variety of special training programs without additional financing by teaching institutions.

The clinical departments of our Medical School have established special training programs for physicians interested in continuing their education and becoming better qualified in a specific area. Included are opportunities for physicians to receive extended training in cardiology, gastro-enterology, diabetes, pathology, oncology, cardiac

surgery, pediatric neurology, clinical preventive medicine and psychiatry.

Fellowships and training grants have permitted more medical students to engage in research and to test their aptitude in this field. Also, promising young scientists have found it possible to continue their careers in our state.

Through one of these programs it has been possible to extend the facilities and resources of the Medical Center to the colleges of the state. The Department of Physiology conducted this summer a one-month training course, with emphasis on the cardiovascular system, for college teachers of science. This concentrated period of study was well received by the teachers who are responsible for the quality of instruction provided to college students, some of whom will become the physicians and scientists of tomorrow. The department will further assist science instructors by visiting the various campuses and using a specially fitted station wagon for experiments and demonstrations of techniques in physiology.

Another unique special training project, in the field of biostatistics, has been established by the Department of Preventive Medicine and Public Health. Supported by the National Institutes of Health, the program has attracted the attention of students interested in enlarging their research capabilities in fields such as medicine, dentistry, psychology, parasitology and the basic medical sciences.

New activities of this type at the Medical Center have done much to create special opportunities for young scientists and physicians; and they have also enhanced the resources of the Medical Center in promoting the best in medical care for the people of the state of Oklahoma.

*Mark R. Everest*

# Sarcoidosis with Joint Involvement

**ALTHOUGH** bone involvement and arthralgia are relatively common in sarcoidosis, cases with histological evidence of joint involvement have been rare. A recent review of joint manifestations in sarcoidosis<sup>1</sup> mentions only the case of Burman and Mayer<sup>2</sup> in which biopsy of the synovial membrane in each knee and elbow had revealed sarcoid tissue in all of these joints. Faulkner<sup>3</sup> reported the case of a 49-year old woman in whom a pedunculated tumor attached to the synovial membrane of the left knee was removed. The microscopic description suggests that the tumor was probably sarcoid.

We have recently had the opportunity to study a case with sarcoid changes in the left wrist joint, proved by biopsy.

## Case Report

A 34 year old white man was admitted to the Veterans Administration Hospital, Oklahoma City, for the first time on February 25, 1957, complaining of recurrent soreness and stiffness in the left wrist for four years. He stated he had fallen on the left hand, twisting the left knee and ankle, while in Basic Training in 1944. Painful swelling of the left wrist, knee, and ankle ensued but gradually subsided over the following two months. Not until 1953 did he again notice occasional stiffness, soreness, and "popping" sensations in the left wrist.

## JAMES O. MORSE, M.D.

James O. Morse, M.D., graduated from the University of Oklahoma School of Medicine in 1953. He returned to the University Hospitals in 1956 to take a residency. Doctor Morse is now a medical missionary abroad.

In April 1954, he lost his balance while unloading a truck and jumped from it holding a 100-pound package of nails. He immediately experienced severe lowback pain radiating down the posterior aspect of the left lower extremity, but complete relief followed a period of bedrest and traction. The episodes of left wrist pain gradually became more severe, and at times swelling, warmth, and redness were noted as well. In early 1955 he had transient swelling of the left knee. He was treated for a fracture of the right wrist in March 1955 with no subsequent difficulty from this joint.

By September 1956 the pain and swelling in the left wrist had become constant, and by November 1956 had progressed to the point the patient was unable to grasp firmly and was forced to discontinue work as a roof repairman. On February 10, 1957, the exacerbation of pain began which prompted his admission. He stated that he had frequent episodes of headache associated with "colds," and recalled a sore throat at the time the pain worsened.



Physical examination revealed a moderately obese, large-framed man, weighing 259 pounds. The temperature was 99.6°, pulse rate 84, respiratory rate 20, and blood pressure 150 mm. Hg. systolic and 90 diastolic. There was no lymphadenopathy, splenomegaly or hepatomegaly. There was a firm swelling of the left wrist and hand. The wrist was also warm, slightly red, and quite tender to palpation and movement. The left ankle was slightly swollen, but not red or tender.

The hemoglobin was 16.0 gm. per 100 ml., the white blood cell count 7,100 per cmm. with 63% neutrophils, 28% lymphocytes, and 9% monocytes. The urinalysis was negative. Serological test for syphilis was negative. Serum uric acid was 6.0, 5.0, 2.8, and 4.6 mg. per 100 ml. on repeated determinations. Serum albumin was 3.8 gm. per 100 ml. and globulin 3.7 gm. per 100 ml. Serum electrophoresis showed albumin 48.7%, alpha<sub>1</sub> globulin 7.6%, alpha<sub>2</sub> globulin 12.9%, beta globulin 14.3%, and gamma globulin 16.4%. The antistreptolysin O titer was 166 units. A lupus erythematosus preparation was negative. The tuberculin skin test was positive and histoplasmin and coccidioidin skin tests were negative. Other laboratory studies of note were brucella agglutination 1:20, serum calcium 5.2 meg/l, serum phosphorus 4.6 mg./100 ml. and alkaline phosphatase 4.5 B.U. Urine Sulkowich was negative. X-ray films of the chest, lumbar spine, ankles, knees, and right wrist on admission were interpreted as being within normal limits. The left wrist (Fig. 1) showed narrowing of the radial-carpal and carpal-metacarpal joints with irregular demineralization of the carpal bones and what appeared to be lytic areas in the triquetrum. There were similar smaller areas in the other carpal bones and the styloid process of the ulna. There was considerable swelling of the soft tissues. Sinus x-rays showed clouding of both maxillary sinuses, more marked on the right, with thickening of the mucoperiosteum.

The initial impression was rheumatoid arthritis and when aspirin gave no relief, phenylbutazone in doses of 300 mg. daily was tried. Since there was only slight and



Figure 1. X-ray of left wrist showing narrowing of joint spaces and demineralization.

transient improvement with this drug, it was discontinued and aspirin reinstituted. Paraffin dips and massage to the wrist were begun, but seemed to increase the pain. Pain and swelling decreased somewhat following immobilization of the wrist in a plaster splint. Repeat x-ray films in four weeks were interpreted as showing no significant change, but those made after eight weeks (Fig. 2) showed marked deminerali-



Figure 2. X-ray taken eight weeks after that in Figure 1 showing greater degree of demineralization and loss of normal trabecular structure.



Figure 3. Microscopic section of synovial membrane from left wrist showing the closely packed granulomatous lesions with interspersed lymphocytes. x 180

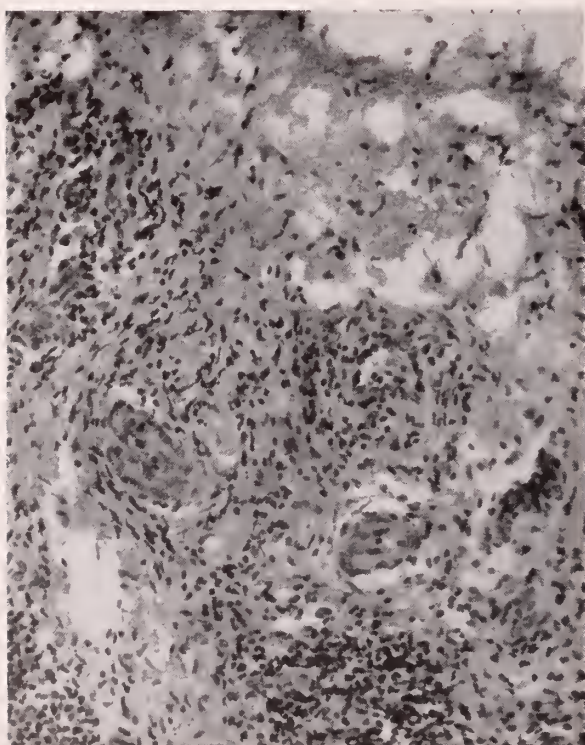


Figure 4. Higher power view of similar area as Figure 3 showing giant cells. x 360

zation and loss of normal trabecular structure. The radiocarpal joint appeared narrowed and the articular surface of the radius irregularly destroyed. There was marked swelling of the soft tissues of the palm and wrist with a simulated "silver-fork" deformity.

In view of these progressive x-ray changes and the persistent pain and swelling, the left wrist was explored surgically. The joint surfaces appeared edematous and somewhat discolored. Several pieces of the synovial lining of the articulating surfaces of the triquetrum and pisiform were excised and a fragment removed from the triquetrum. Histological study of the synovium (Figs. 3 and 4) revealed very numerous, discrete, closely packed, granulomatous lesions composed of epithelioid cells and an occasional Langhan's type giant cell. No caseation necrosis, asteroid, or Schaumann bodies were seen. Separating the granulomatous lesions were moderate numbers of lymphocytes. No acid-fast bacilli were seen on specimens appropriately stained. The sections of bone and fatty marrow revealed similar granulomatous lesions in one fragment. There was fibrosis of some of the adjacent marrow spaces. It was the pathologist's impression that this probably represented Boeck's sarcoid. Cultures of swabs of the joint spaces as well as fragments of the synovia itself grew no organisms, including those on media for acid-fast organisms.

A needle liver biopsy was performed, yielding a specimen which showed a granuloma with giant cells (Fig. 5).

Prednisone, sodium para-aminosalicylate, and isoniazid were begun, and the pain and joint swelling diminished rapidly. However, improvement was only temporary, and the patient began to complain also of constant aching in the cervical region, left hip and left knee, although there were no physical or x-ray changes in these joints. The original 40 mg/day dose of prednisone was continued for three weeks, then gradually decreased and discontinued completely after six weeks.

He continued to wear the wrist brace but suffered a fracture of the right fibula on



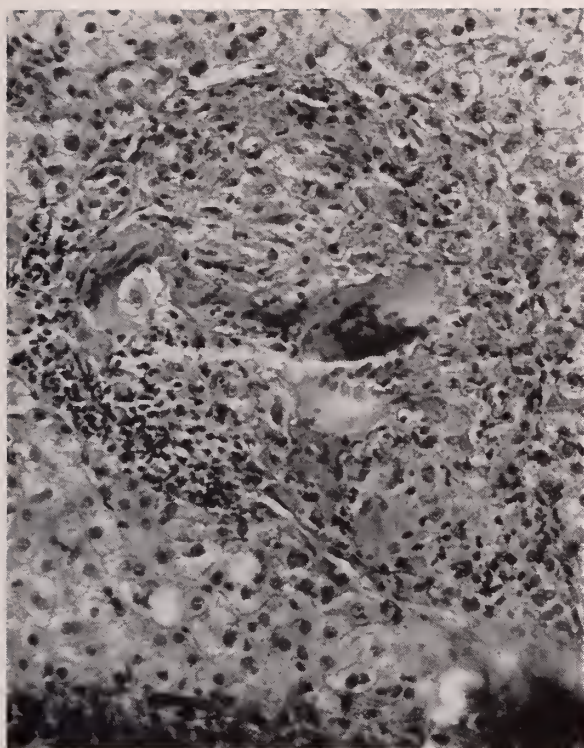


Figure 5. Microscopic section of liver (H and E Stain) showing granuloma. x 360

October 13 and was readmitted at that time for open reduction. When seen last January 28, 1958, he still complained of pain in the left wrist which still appeared swollen, warm and tender. He stated that he was continuing to take the isoniazid and para-aminosalicylic acid as recommended.

#### Comment

Although arthralgia is a common complaint in sarcoidosis,<sup>4</sup> there are usually no objective joint findings. Apparently, this patient experienced similar pains in the left knee and left elbow at times.

Cases of sarcoidosis displaying a migratory polyarthritis with hot, painful, swollen joints simulating rheumatic fever have been reported by several authors in recent years.<sup>1, 6, 7, 8</sup> X-ray changes are usually limited to minimal roughening of articular surfaces or cystic changes in adjacent bone, but most cases showed no x-ray abnormalities in the joints and only minimal residual deformities were encountered.

Castellanos<sup>9</sup> reported the case of a 6-year-old boy with extreme swelling of ankles, knees, wrists, elbows, and shoulders for three

years and with histologic evidence of sarcoidosis from a lymph node and from bone marrow aspiration. The synovial membrane in the left knee was biopsied but only chronic, non-specific inflammatory changes were seen. Although the tuberculin reaction converted to positive 18 months later, and the child developed first a pleural effusion then a cold paraspinal abscess and eventually expired with tuberculous meningitis, it seems likely that this case represented at first sarcoidosis with rheumatic manifestations but without actual joint involvement by the granulomatous process.

Turek<sup>10</sup> reported as a rarity the case of a 52 year old man with persistent pain and swelling in the left ankle following a minor injury. X-rays eventually showed a spotty atrophy of all the bones about the ankle. At operation, changes of sarcoid were found at the border of adjacent cartilage but the joint capsule was not involved. This instance is similar to the two cases cited by Moyer<sup>11</sup> in which arthritic findings were apparently due to involvement of adjacent bone only.

The present case with sarcoidosis visibly confined to a single joint and manifested by hot, painful swelling, would seem unique. Such lack of joint involvement has even been listed as a differential radiological diagnostic joint.<sup>12</sup> That this patient's disease was actually generalized, however, is attested to by the finding of a granulomatous process in the liver.

Why sarcoidosis, which has been found to involve practically every tissue of the human body,<sup>13</sup> should so tenaciously avoid the joints is not clear unless the avascular nature of synovium protects it from the etiologic agent. When joint involvement does occur in sarcoidosis, it probably represents, as in tuberculosis, extension from adjacent bone in whose marrow the etiologic agent was originally seeded. That the bone marrow, in a carpal bone in this case, also showed sarcoidosis would suggest this. Indeed, the low invasiveness of sarcoid would seem to be all that prevents the relative incidence of joint sarcoid from approaching that of tuberculosis. That this present case is not merely tuberculous arthritis is attested to not only by the pathological character-



istics of the excised synovium and of the liver biopsy, but also by the results of thorough cultures and the lack of response to prolonged antituberculous therapy.

### Summary

A case of sarcoid involving the left wrist and the liver is presented. Possible reasons for the rarity of joint sarcoid are discussed.

### Acknowledgment

The author wishes to thank Doctors James F. Hammarsten, S. M. Glasser, and C. D. Toole for their advice and encouragement in the preparation of this paper.

### REFERENCES

1. Ferguson, R. H. and Paris, J.: Sarcoidosis. Study of 29 cases with a Review of Splenic, Hepatic, Mucous Membrane, Retinal and Joint Manifestations, *Arch. Int. Med.*, 102: 1065, 1958.

2. Burman, M. S. and Mayer, L.: Arthroscopic Examination of the Knee Joint, *Arch. Surg.*, 32: 846, 1936.
3. Faulkner, D. M.: Primary Synovial Membrane Tumors of Joints, *Surg., Gyn., and Obs.*, 53: 189, 1931.
4. Duthie, J. R. and Davidson, L. S. P.: Textbook of Rheumatic Diseases, Copeman, W.S.C. er., E. And S. Livingston, Ltd., 1955, p. 187.
5. Myers, G. B., Gottlieb, A. M., Mattman, P. E., Eckley, G. M., and Chason, J. L.: Joint and Skeletal Muscle Manifestations in Sarcoid, *Am. Jour. Med.*, 12: 161.
6. Gendel, B. R., Young, J. M. and Greiner, D. J.: Sarcoidosis, A Review with Twenty-four additional cases, *AM. Jour. Med.*, 12: 205, 1952.
7. Nelson, R. S.: Sarcoidosis in the Armed Forces. *Am. Jour. Med. Sci.*, 226: 131, 1953.
8. Katzman, A.: Polyarthritides and Erythema Nodosum in Sarcoidosis. *N. Y. State J. Med.*, 53: 1459, 1953.
9. Castellanos, A., and Galan, E.: Sarcoidosis: Report of a Case in a Child Simulating Still's Disease. *Am. Jour. Dis. Child.*, 71: 513, 1946.
10. Turek, S. L.: Sarcoid Disease of Bone at the Ankle Joint. *Jour. Bone and Joint Surg.* 35-A: 465, 1953.
11. Moyer, J. H. and Ackerman, A. J.: Sarcoidosis. *Am. Rev. Tuberc.* 61: 299, 1950.
12. Mather, G.: Calcium Metabolism and Bone Changes in Sarcoidosis. *Brit. Med. Jour.* 1: 248, 1957.
13. Longcope, W. T., and Freiman, D. G.: A Study of Sarcoidosis. *Med.* 31: 6, 1952.

Magnification, as stated above, was reduced by three-quarters for publication in *The Journal*.

UNIVERSITY REGENTS approved the following appointments of chairmen of basic science departments for July 1 through June 30, 1961: Anatomy, Doctor Ernest Lachman; microbiology,, Doctor Vernon Scott (temporary); biochemistry, Doctor Mark R. Everett and Doctor Arley T. Bever, vice-chairman; pathology, Doctor William E. Jaques; pharmacology, Doctor Paul W. Smith and Doctor Harold A. Shoemaker, vice-chairman; physiology, Doctor A. N. Taylor and Doctor James W. H. Smith, vice-chairman; preventive medicine and public health, Doctor Kirk T. Mosley and Doctor W. W. Schottstaedt, vice-chairman.

JUNIOR LEAGUE of Oklahoma City has given University hospitals \$2,400 to pay for installation of ultraviolet lights in all nurseries and other critical areas as a means of preventing airborne spread of staphylococcus. Installation has been completed in most units.

## Torula Meningitis Treated with Amphotericin B\*

Edited by Jack D. Welsh, M.D.,\*\* discussion by D. W. Foerster, M.D.,\*\*\*, Walter A. Camp, M.D.\*\*\*\* and Captain Everett R. Rhoades, USAF (MC)\*\*\*\*\*

*D. W. Foerster, M.D.:* The patient is a 54-year-old white farmer who was admitted to the Oklahoma University Hospitals in a semiconscious condition and the history was obtained from the members of his family.

*Present illness:* The patient had been in good health until eight months prior to admission when he had what was described as a "heat stroke." Little information is available concerning this episode other than that he developed a generalized headache which recurred with increased intensity and frequency following a tooth extraction about one month prior to admission. These head-

aches became daily in occurrence and salicylates gave only minimal relief. During this same time he developed increasingly severe episodes of nausea and vomiting. He was noted to be lethargic and hostile and to have difficulty with his gait. He became bedfast and was unresponsive the day before admission. The patient had lost 20 pounds in weight during this illness.

The only other historical fact of note was progressive deafness which followed an old perforation of the right ear drum.

*Physical examination:* B. P. 120/80, T. 99.2° F., R. 20/min., pulse 76/min. The patient was a well-developed white man who was stuporous, combative, and dehydrated. He held his lids tightly closed and his legs rigid. The right tympanic membrane had an old, healed perforation. There was early bilateral papilledema without hemorrhage or exudate. Examination of the heart, lungs, abdomen, and extremities was not remarkable. There were no palpable lymph nodes. Nuchal rigidity was present. The patient moved all of his extremities, but there was moderate bilateral hypertonicity. Deep tendon reflexes were hypoactive in the upper

\*The contents reflect the personal views of the Air Force author and are not to be construed as a statement of official Air Force policy.

\*\*Former Chief Medical Resident, University of Oklahoma Medical Center. At present Research Fellow, National Institute of Arthritis and Metabolic Diseases, Department of Medicine, University of Oklahoma Medical Center, Oklahoma City, Oklahoma.

\*\*\*Former Intern, at present Surgery Resident, University of Oklahoma Medical Center, Oklahoma City, Oklahoma.

\*\*\*\*Former Medical Resident, University of Oklahoma Medical Center, Oklahoma City, Oklahoma, at present Assistant Resident in Medicine, The New York Hospital, New York, New York.

\*\*\*\*\*Medical Resident, University of Oklahoma Medical Center, Oklahoma City, Oklahoma.

extremities and absent in the lower. The Babinski reflex was positive bilaterally but no other abnormal reflexes were elicited.

*Hospital course:* The essential laboratory data and the patient's therapy are given in Table I. In addition, on admission, the urinalysis was normal as were the total serum protein, blood sugar, and bilirubin. A lumbar puncture showed an opening pressure of 300 mm. and a closing pressure of 150 mm.; the protein was 155 mg.%. The stained smear of the fluid showed 40 lymphocytes per cu. mm. as well as encapsulated, yeast-like organisms. Organisms characteristic of *Cryptococcus neoformans* were demonstrated using an India ink preparation. X-ray films of the chest and skull were normal. An electroencephalogram showed one to four per second moderate voltage slow wave activity throughout.

The patient's dehydration was corrected with intravenous fluids and he was maintained on a 2,000 calorie tube feeding mixture. On the second hospital day intravenous administration of amphotericin B was instituted because of the diagnosis of *Torula meningitis*. After receiving only 12 mgs. of this medication, he had a severe chill and

a temperature elevation of 102° F. Accordingly, sodium salicylate in 600 mgm. amounts was given rectally at 3-4 hour intervals and Chlor-trimeton in 10 mg. amounts was added to his intravenous fluids. The amphotericin B was gradually increased as shown in Table I. By the second week, the patient's BUN was 33 mg.%, and his hematocrit had decreased to 40%. He remained stuporous and occasionally talked incoherently. A *Torula* preparation, performed during the third week, was negative. At this point the patient recognized his family and started asking for food. His hematocrit continued to decrease however, and a lumbar puncture during the sixth week of hospitalization still showed an elevation of the protein and 16 lymphocytes. His memory was decreased and he occasionally manifested confusion. Nevertheless, the patient was able to walk at this time.

*Walter A. Camp, M.D.:* *Cryptococcus* is the most common cause of mycotic meningitis in man. Busse<sup>1</sup> and Buschke<sup>2</sup> as early as 1895 described gumma-like lesions of the leg in a 31-year-old female. Autopsy showed involvement of the lungs, spleen, kidney, and bone by cryptococcosis. Since that time,

TABLE I  
Course

Week	1	2	3	4	5	6	13*	17**	21**
WBC per mm <sup>3</sup>	9,000	8,850	—	7,500	—	7,100	5,300	4,950	—
Hct. %	43	40	35	31	32	29	30	34	—
BUN, mg.%	19	33	27	23	28	18	15	—	13
C.S.F. Open pres. mm. of fluid	300	—	195	—	100	210	180	—	—
Close pres. mm. of fluid	150	—	145	—	84	136	130	—	—
Cells/mm <sup>3</sup>	40 L.		15 L.		9 L.	16 L.	0	29 L.	10 L.
Prot., mg.%	155	—	72	—	80	30	59	72	65
Sugar, mg.%	30	—	27	—	61	46	56	—	—
Spinal Fluid Culture	Pos.	—	Neg.	—	Neg.	Neg.	Neg.	—	—
Amphotericin B, mg./week (intravenous)	237	340	260	195	260	195	2,452 Total Treatment		

\*Last week of Hospitalization

\*\*Clinic visits



the literature has contained an ever increasing number of case reports. Approximately one-third of the patients have had some pre-existing chronic illness, mainly of the lymphoma-leukemia group.

Pulmonary infections with cryptococcus are probably quite prevalent but they are infrequently diagnosed because of the lack of clinical symptoms. Usually there is a cough with scanty sputum and a low grade fever; while dyspnea, hemoptysis, pleuritic pain, and weight loss are infrequent. Many think that the respiratory tract is the portal of entry for the systemic disease although symptoms have been first noted after such procedures as dental extractions. Physical findings may indicate a small area of consolidation or bronchitis. Rarely, there is an associated effusion. X-ray findings are varied and may simulate any pulmonary infection. In cryptococcosis the pulmonary disease is typically located in the lower one-half of the lung fields, shows rare cavitation, lack of evidence of fibrosis and calcification, inconspicuous hilar adenopathy, infrequent massive collapse of involved lobes, and the rare occurrence of coin lesions.<sup>3</sup> This distinction has proved to be helpful in the radiological diagnosis of the disease.

*Cryptococcus neoformans* has a particular predilection for the central nervous system and it is this involvement which our patient illustrates. In a large series of patients with torulosis of the central nervous system reviewed by Mosburg and Arnold,<sup>4</sup> 122 patients were males and 50 females. The age ranged from 19 days to 60 years. It is interesting that the ante mortem diagnosis in most of the reported cases has been made by the use of spinal fluid cultures, rather than by India Ink preparations. The histologic findings may range from a few small isolated lesions in the superficial areas of the cortex to a diffuse involvement of all the areas of the brain; and, rarely, localized granulomatous lesions can be demonstrated. The most common presenting picture in central nervous system cryptococcosis is that of meningitis. In light of the varied pathological picture, it is understandable that this infection may be confused with a brain tumor, subarachnoid hemorrhage, brain ab-

cess, encephalitis, or even subdural hematoma. Although there is no classical prototype of this disease, most authors<sup>3</sup> describe a mild, bilateral, frontal headache which is the initial complaint. During the following week or months, these headaches increase in severity and frequency and are unrelieved by analgesics. As the headaches increase, vertigo, faintness, and vomiting may occur. Ataxia has also been frequently reported. With progression of the disease, the patient becomes lethargic, keeps his eyes closed, groans, and resists all efforts to be examined. Anorexia and weight loss are fairly common. The history of a remission some time during the early phase of the illness is common enough to be considered a part of this clinical picture. Irritability, restlessness, forgetfulness, apathy, and confusion may suggest the possibility of some emotional disorder in elderly patients and they have often received psychiatric therapy in the earlier phases of the illness. It is interesting that Doctor John Coates of the Neurosurgery Department made a clinical diagnosis of Torula meningitis on our patient when he first saw him in the emergency room.

On examination, the patient is usually afebrile. There are signs of meningismus with nuchal rigidity and positive Kernig and Brudzinski signs. Papilledema is very common, whereas diplopia and nystagmus are less frequent. Photophobia and optic atrophy are rare.

The hemogram is usually normal, although a slight leukocytosis is not uncommon. The spinal fluid pressure is moderately increased and the fluid may be opalescent or xanthochromic. The protein is usually elevated in the range of 100 mg.%. The cell count reveals predominantly lymphocytes in the range of 40 to 100 cells per cu. mm., while the spinal fluid sugar is generally not remarkable. An India ink preparation for Torula on the spinal fluid, contrary to common belief, is usually negative on the first examination. However, the organisms are usually easily recovered if the spinal fluid is placed on Sabouraud's medium. The diagnosis will be most frequently made if cryptococcosis is suspected and proper cul-

TABLE 2

	Geographic Location	Mode of Infection	Man to Man	Probable Entry	Race Susceptibility	Major Site(s) in Body	Histology	Culture	Skin test	Serology test
Blastomycosis	Eastern N. America	?	No	Skin? Lungs	None	Skin Lungs Dissem.	Budding Yeast	SAB—20° Mycelial Blood—37° Yeast	Not as constant as others. Cross reacts with Histo	Cross Rx. with Histo. Complement Fixation
Histoplasmosis	North and South America Ohio Valley	Spores from soil	No	Lungs	None	Lungs, Lymphatics, Disseminated	Intra-cellular or budding yeast	SAB—20° Mycelial Blood—37° Yeast	Positive after 3 or 4 weeks	Complement Fixation Yeast and Mycelial phase
Coccidioidomycosis	South and Central America and S.W. U.S.A.	Arthrospores from soil	No	Lungs	Negroes Filipinos	Lungs, Disseminated	Spherule with Endospores	Always Mycelial	Positive in first week	Complement Fixation
Cryptococcosis	Worldwide	?	No	Lungs? Oral?	?	Lungs? CNS	Encapsulated yeast	Always yeast	No	No

Predominant characteristics and differences between the four deep mycotic infections of man in the United States.

tures are taken in any patient in whom one finds unexplained cerebral spinal fluid pleocytosis.

The duration of this illness is also quite varied, particularly since the advent of effective therapy. Prior to the use of amphotericin B, the duration of the illness ranged most commonly between one and six months although it was uncommon to find patients living for several years, organisms being recovered from the spinal fluid throughout the total illness. Neurosurgical intervention has been noted in reported series in as high an incidence as 20%. Cryptococcal meningitis is frequently confused with frontal lobe tumors because of the personality change, the slow progression of symptoms, and the late development of papilledema. Again, in the presence of papilledema, many people are reluctant to do a spinal tap, and the correct diagnosis is not made until the time of surgical exploration. It is of particular importance to note that fluid obtained from the ventricles may not contain the organisms even when the spinal fluid has large numbers of organisms.<sup>5</sup>

The development of neurological signs in patients with a lymphoma or leukemia should arouse suspicion of cryptococcosis. Zimmerman and Rappaport reported 30%

of their cases occurred in association with Hodgkins disease.<sup>6</sup> Some authors have even suggested that the fungus, or one of its products may be one etiological agent of Hodgkins.<sup>7</sup> It has also been noted that an increased incidence of cryptococcosis has been noted in sarcoidosis.

*E. Rhoades, M.D.:* I should like to consider four of the so-called deep mycotic infections of man in the United States: coccidioidomycosis, histoplasmosis, blastomycosis and cryptococcosis. Some of the predominant characteristics and differences between the four organisms are summarized in Table II. North American Blastomycosis is apparently limited to the North American continent, the chief areas being in the southeastern United States, although cases have been reported from Canada and New England. Histoplasmosis is associated with a damp environment, and the greatest areas of involvement are along the Ohio and Mississippi River Valleys. Coccidioidomycosis has been shown to have its greatest area of endemicity in the southwestern United States, particularly near Phoenix, Arizona; El Paso, Texas; and the well-known San Joaquin Valley, California. Cryptococcosis has been shown to occur in all the continents. North America and Australia seem to be the



chief areas of involvement. Because of its early description in Europe, it sometimes is called European blastomycosis.

It has been well documented that the origin of coccidioidomycosis and histoplasmosis is intimately concerned with soil conditions, the former occurring in dry, dusty soil and the latter in moist, rich soil. The source of blastomycosis in nature is not well understood. It has been linked to decaying wood, but there are aspects of the disease which are not completely explained on this basis. Cryptococcosis has been found in soil, in ripening peaches, and more recently has been shown to have a high degree of association with pigeon excreta. The respiratory tract seems to be clearly established as the portal of entry in histoplasmosis and coccidioidomycosis. The portal of entry for blastomycosis is not well established, although the lungs and the skin are probably portals of entry. It is assumed, but not proven, that the primary entrance of *Cryptococcus* into the body is by way of the lungs. Some workers feel that if a careful enough search is made, a small area of involvement in the lung can usually be found at autopsy. Since cryptococcosis characteristically leaves very little residua in the form of granulomatous or calcified lesions, one would have great difficulty in positively establishing the primary site. Initially, histoplasmosis and coccidioidomycosis are pulmonary infections which may be followed in a minority of patients by dissemination. Blastomycosis involves the lungs as well as the skin. The affinity of the *Cryptococcus* for the central nervous system is well known. However, it may also cause disseminated disease.

Bacteriologically, the organisms are quite easily distinguished and grow readily on special media. *Cryptococcus neoformans* never forms a well-developed mycelium and grows as a yeast both at 37° C. and at room temperature. *Coccidioides immitis* grows as a mycelial phase at both temperatures. Only *Histoplasma capsulatum* and *Blastomyces dermatitidis* have a bi-phasic growth at the two temperatures. Both grow as a yeast on blood agar at 37°, and both form matted mycelial growth at room temperature. However, *Histoplasma capsulatum* has

a tuberculate chlamydospore which is large and round with many small projections on the surface. This is readily distinguished from the microconidia of *Blastomyces dermatitidis*. In animals, all four organisms grow as a yeast phase. *Histoplasma capsulatum* is distinguished by its small size and intracellular abode. *Coccidioides immitis* typically occurs as spherules with doubly refractile walls which contain many small endospores. The wide gelatinous capsule is the hallmark of *Cryptococcus neoformans*.

Reliable skin tests have been developed for histoplasmosis and coccidioidomycosis utilizing an extract of media in which they were grown. The skin test for blastomycosis is less reliable and none is available for cryptococcosis.

A complement fixation test is available for histoplasmosis, coccidioidomycosis, and blastomycosis, but at the present time, except for actual recovery of the organism, there appears to be no valid test for cryptococcosis. In coccidioidomycosis, antibodies appear during the first month of an acute illness and persist for many months. As with the other fungus complement fixation tests, a rather low titer of 1:4 or 1:8 is considered significant, strongly suggesting infection at some time in the past. A rising titer is indicative of an active infection. The histoplasmin complement fixation test utilizes both a mycelial and a yeast phase antigen. The blastomycin skin test and the complement fixation tests have been known to cross react with histoplasmosis.

The treatment of histoplasmosis and coccidioidomycosis can be divided into two phases. First is the benign pulmonary disease which requires only symptomatic treatment and is usually self-limited. Until quite recently, the treatment of the disseminated forms of all these diseases was remarkable only in its failure. The mortality in all was quite high until the advent of amphotericin B. Isolated involvement by any of the organisms is amenable to surgical excision, and apparent cures of cryptococcosis of the lung, coccidioidomycosis of the skin and other organs have been reported.

Amphotericin B is an antibiotic derived from an unnamed species of streptomyces



grown from soil obtained near the Orinoco River in Venezuela. Two substances have been extracted from the filtrate of the organism, both of which are amphoteric and polyenes. These were named amphotericin A which is a tetraene and amphotericin B which is a heptaene. Amphotericin A, although more water soluble than amphotericin B, is less fungistatic and is not used clinically. As little as 0.05 microgm. per ml. of amphotericin B will inhibit *Blastomyces* and *Cryptococcus in vitro*. In our laboratory, the respiration of *Cryptococcus neoformans* appears to be significantly decreased by as little as 1.0 microgm. per ml. of the drug. Amphotericin B has a considerable degree of toxicity, although this appears to be more of a troublesome than dangerous nature. The predominant side effects are chills, fever, nausea, and vomiting. The blood urea nitrogen commonly rises during administration of the drug and almost invariably returns to normal after its discontinuance. At the present time, the mechanism producing the BUN elevation is not known and we are working on this problem with patients receiving amphotericin B. We have observed in three patients who have received this medication that the hemoglobin falls slightly, but usually rises again to normal levels after the drug is discontinued. The mechanism by which this is brought about is likewise unknown. Because of the poor absorption of amphotericin B from the gastrointestinal tract, it must be given intravenously. It should be given by infusion in at least 500 ml. of glucose and water slowly over several hours. A relatively low dose should be used initially, in the neighborhood of 15 to 20 mg. per day and this is gradually increased to 1 mg./kg. body weight per day or more if the patient can tolerate it. The highest blood level is obtained about 15 minutes after the infusion is completed, and with a single dose of 35 mg., a blood level of 2.5 microgm. per ml. has been reported in 45 minutes.<sup>8</sup> Following this, the blood level is maintained for about two hours, then it falls rapidly to about 1 microgm. per ml. and persists for about eight hours. Levels between 0.5 and 1.0 microgm. per ml. persist for approximately 24 hours. There appears to be little

cumulative effect when given repeatedly. It has been shown that there is a direct relationship between the penetration of the drug into the cerebrospinal fluid and the level of the protein in the spinal fluid, in that the higher the spinal fluid protein, the greater the concentration of amphotericin B appearing in the fluid.

At the present time, I have been able to find a total of 23 cases of cryptococcal meningitis, with or without other involvement, treated by intravenous amphotericin B. Four moribund patients have been able to resume their normal activities, while others have had such residua as headaches and personality changes. Because of the protracted nature of the disease caused by *Cryptococcus neoformans*, it is too early to be sure about the long term effects of any treatment. One is reminded of the well-known case reported by Beeson<sup>9</sup> of the woman who lived for 16 years with proved cryptococcal meningitis during which time she had two full term pregnancies and two abortions. She finally died after many exacerbations and remissions of an internal hydrocephalus. The improvement reported, using amphotericin B, not only in cryptococcosis but in disseminated histoplasmosis, coccidioidomycosis, and blastomycosis, is striking, and quite beyond that reported by any other therapeutic agent. Still, one must recall that any chemotherapeutic agent, regardless of *in vitro* sensitivities, may be ineffective in a disease characterized by abscess formation and granulomata. This seems to be true, not only because the material may fail to penetrate into such an area, but because of the altered metabolism of the organism present there.

*Follow-up subsequent to the conference:* The patient was discharged seven weeks after this conference having received a total of 2.452 gms. of intravenous amphotericin B. During this last seven-week period his hematocrit ranged from 26 to 30 and his BUN from 14 to 54 mg.%. The leukocyte and platelet counts remained normal. The cerebral spinal fluid protein, the week of discharge, was 59 mg.%. The patient had gained about 30 pounds and there was no residual neurological deficit other than a

flattened affect. Although asymptomatic one month and two months after discharge, his spinal fluid protein and cell count were still elevated. Table I. Smears of the fluid were negative.

#### BIBLIOGRAPHY

1. Busse, O.: Ueber saccharomycosis hominis. Virchows Arch. f. Path. Anat. 140: 23, 1895.
2. Buschke, A.: Ueber eine durch coccidien hervorgerufene krankheit des menschen. Deutsche med. Wchschr. 21: 14, 1895.

3. Littman, M. L. and Zimmerman, L. E.: Cryptococcosis. Grune and Stratton, New York and London, 1956.
4. Mosberg, W. H., Jr., and Arnold, J. G., Jr.: Torulosis of the central nervous system; review of literature and report of five cases. Ann. Int. Med. 32: 1153, 1950.
5. Grinker, R. R., and Bucy, P. C.: Neurology, Springfield, Illinois, Charles C. Thomas, Publisher, 1951.
6. Zimmerman, L. E., and Rappaport, H.: Occurrence of cryptococcosis in patients with malignant disease of reticuloendothelial system. Am. J. Clin. Path. 24: 1050, 1954.
7. Burger, R. E., and Morton, C. B.: Torula infection: a review and report of four cases. Surgery, 15: 312, 1944.
8. Seabury, J. H., and Dascomb, H. E.: Experience with amphotericin B for the treatment of systemic mycoses. Arch. Int. Med. 102: 960, 1958.
9. Beeson, P. B.: Cryptococcosis meningitis of nearly sixteen years' duration. Arch. Int. Med. 89: 797, 1952.

800 N.E. 13th, Oklahoma City, Oklahoma

## FACULTY NEWS

### Cummings to Head Department of Microbiology



Martin M. Cummings, M.D., former national director of medical research for the Veterans Administration, is new professor and chairman of the Department of Microbiology at the School of Medicine.

With the Veterans Administration since 1949, Doctor Cummings had headed the research service in the VA Department of Medicine and Surgery the past six years. Under his direction, VA research activity

showed a marked increase. The clinical investigator and senior medical investigator programs were started, and a new research division on aging and on geographic epidemiology were established.

Doctor Cummings has held part-time academic positions since 1948, as instructor, then associate professor of medicine and associate professor of bacteriology at Emory University School of Medicine and as special lecturer in microbiology at George Washington University School of Medicine.

At the Medical Center he will continue research on sarcoidosis which he started at the Atlanta, Georgia, VA hospital. Another research interest is tuberculosis. He has been chairman of the Research Committee of the National Tuberculosis association since 1958 and has served as VA representative to the National Research Council and the National Advisory Health Council to the Surgeon General of the U. S. Public Health Service.

Doctor Cummings received his M.D. from Duke University School of Medicine in 1944; he interned at Boston Marine hospital and took residency training there and at Grasslands hospital, Valhalla, N.Y.

L. Vernon Scott, D.Sc., professor of microbiology, served as temporary Microbiology chairman after Florene Kelly, Ph.D., professor, resigned from the chairmanship early this year.



## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

### *BILL INTRODUCED IN WISCONSIN ASSEMBLY WOULD ALLOW CERTAIN HOSPITALS TO CHARGE PATIENTS FOR MEDICAL AND ALLIED SERVICES*

—On February 10, 1959 a bill, No. 129A, was introduced in the Wisconsin Assembly, which provided, in part:

"In the proper conduct of their functions in the care and treatment of the sick and injured, non-profit hospitals as defined in s. 70.11 (4m) and hospitals owned, operated and maintained by the state or any political subdivision thereof may engage anesthesiologists, physiatrists, radiologists and pathologists, on a contractual basis, and charge the patient directly for services rendered by such person, where a contract for such services has been negotiated between the patient and such hospital. In such circumstances and in the treatment of such patient, the anesthesiologist, physiatrist, radiologist or pathologist shall exercise his professional judgment without supervision or interference by the hospital. Such hospitals may also charge patients directly for the services of their employees, including that of nurses, anesthesiologists, and medical assistants."

*MEDICAL PROFESSIONAL LIABILITY BASED ON AGGRAVATION OF PREVIOUS INJURY*—In a personal injury action the Supreme Court of Wisconsin stated that "It is true that where personal injuries resulting from a tort are aggravated by a doctor's malpractice, and it is impossible to separate the damages resulting from each wrong, both the original tortfeasor and the doctor may be liable for the entire damage, in which case a payment made to plaintiff by one of them will inure to the benefit of the other and require a corresponding reduction in any judgment recovered by plaintiff from the non-paying tortfeasor."

*Heims v. Hanke*, 93 N.W. 2d 455 (Wisc., Dec. 2, 1958).

*DENIAL OF MEDICAL AND SURGICAL STAFF PRIVILEGES BY PRIVATE HOSPITAL NOT SUBJECT TO JUDICIAL REVIEW*—The New Mexico Supreme Court held that the decision of a private hospital to deny medical and surgical staff privileges to a physician was not subject to judicial review. In this particular case the Court held that a hospital financed in part by a county bond issue, and in part by a county hospital association, and operated by the hospital association pursuant to a lease from the Board of County Commissioners was a private hospital.

*Akopianz v. Board of County Commissioners of Otero County*, 333 P. 2d 611 (N.M., Oct. 28, 1958).

*PHYSICIAN'S CHARGES UPHELD*—The Municipal Court of Appeals of the District of Columbia has upheld a judgment for a physician for medical treatment rendered a patient referred to him by another physician. The patient defended on the ground that the services were not furnished at her request and that the amount claimed was not reasonable. The Court held that the services were rendered under an implied contract and that the amount claimed was not unreasonable.

*Hankerson v. Thomas*, 148 A. 2nd 583 (D.C., Feb. 24, 1959)

*PHYSICIANS RE-REGISTERING UNDER THE NARCOTIC LAWS*—Every physician who "distributes, dispenses, gives away, or administers narcotic drugs" to patients must pay a tax of \$1 and register with their District Director of Internal Revenue on or before July 1 of each year. It is the Internal Revenue Service's custom to accept an offer of compromise of \$5 for the first offense and \$10 for the second offense from physicians who are delinquent or tardy in complying with these requirements.

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*



# CONTROL VERTIGO, DIZZINESS... AND ELEVATE THE MOOD



with **Dramamine-D<sup>®</sup>**

brand of dimenhydrinate with dextro-amphetamine sulfate

"Disturbances of balance resulting from vestibular disorders have long been known to lead to severe anxiety."\*

Vertigo—whether of organic or functional origin—tends to leave depression in its wake. Dramamine-D is a therapeutic combination designed for treatment of the entire vertigo-reaction syndrome. Each tablet contains dimenhydrinate (50 mg.) to control dizziness, and dextro-amphetamine sulfate (5 mg.) to elevate the mood.

\*Pratt, R. T. C., and McKenzie, W.: Anxiety States Following Vestibular Disorders, *Lancet* 2:347 (Aug. 16) 1953.

**Dramamine<sup>®</sup>** available as tablets, ampuls, liquid, suppositories

Research in the Service of Medicine

**SEARLE**

## Insurance for Senior Citizens Under Study

At the direction of the House of Delegates, the Senior Citizens Insurance Committee met August 28 to discuss the development of an indemnity-type health insurance program for Oklahomans who are over 65 years old. The "indemnity" approach to the challenge of an aging population came as a result of the action taken by the House of Delegates on August 2, when they squelched a proposal for a service-type program for the low income elderly.

In investigating the possibilities of indemnity coverage for this age segment, the committee recognized the limitations placed upon it by the Delegates and considered the development of a medical care program rather than a medical-hospital package. There was much discussion in this regard since it was the opinion of some that the total cost of medical and hospital care should be considered, particularly from a merchandising standpoint, if the voluntary enterprise approach were to supplant the alleged need for federal legislation. Initial work in planning for medical-hospital coverage of the aged indicated that the total annual premium for such a service should not exceed \$6.00 per person. Representatives of Blue Shield, who were invited guests at the committee meeting, stated that if physician activity were limited to the development of medical care coverage, the Blue Cross board would no doubt investigate the possibility of initiating a companion program to cover costs of hospitalization.

Mark R. Johnson, M.D., acting chairman of the OSMA committee, offered the following suggestions as alternatives in the development of a program for physician services.

1. The development of an indemnity program which would incorporate a deductible feature and thereby lower the premium and lessen unnecessary utilization.
2. The conversion of the previously re-

jected service plan (see August *Journal*) to an indemnity program, (Note: Since hospitals had agreed to prime or out-of-pocket costs under the service plan and would not necessarily do so if physicians took the indemnity avenue, such a conversion would likely necessitate a reduction in the fee schedule—50% of Medicare—if a marketable program were to be achieved).

3. The removal of the age limits from the Blue Shield 200 contract, with a possible reduction of the length of stay and fee schedule in order to permit a saleable premium.

In regard to the first alternative, it was reported that experience with such programs, within and without the state, indicated that co-insurance plans were difficult to sell and, despite some effect upon admission rates, had failed to curtail length of stay.

The second alternative was also thought to be ill-conceived from an indemnity standpoint since such a conversion would result in an extremely unrealistic fee schedule.

It was generally agreed by the group that the association should develop a program that would assure reasonably adequate compensation for *medical care* and, at the same time, not jeopardize a total *medical-hospital* program by pricing it beyond the reach of the group it is to serve. To best accomplish this objective, it was decided that the committee would ask the Board of Trustees of the Blue Shield Plan to consider extending the standard Blue Shield contract to those persons over the age of 65. Under such a program, it was felt that physicians could apply their own means test in determining the elderly recipients' ability to pay and either accept the Blue Shield fee as payment in full or bill the patient for additional charges where indicated.

The Blue Shield office has been requested to place the proposal before its board and notify the OSMA of any action taken

(Continued on Page 695)



# Model Nursing Home

## Opened in Coalgate



Ruth Wilson Hurley Manor, the nation's first community owned and privately sponsored nursing home, was opened May 4, 1959 in Coalgate, Oklahoma. The manor, which was planned in every detail to be a *home* rather than an institution for the retired elder citizen, was named in honor of Ruth Wilson Hurley, who with her husband, General Patrick J. Hurley, contributed \$123,000.00 toward financing the structure. It has been established as a non-denominational, non-sectarian and non-profit organization.

### New Accommodations Offered

The manor is prepared to care for 42 residents, however, it is planned for future expansion. Central facilities such as dining room, kitchen, laundry and main lounge will accommodate 100 persons. Private and semi-private rooms are available, all of which have outside exposure and individual controls for heating and air conditioning. The corridors and bath areas are equipped with hand rails. There are three large enclosed sunporches, with doors wide enough for the bed-fast person to be rolled out to enjoy fresh air and sunshine.

A central nurses station is located so that entrances to each room can be observed by the person in charge. Other unique features include telephone booths accommodating wheel chairs, a library with hundreds of books which have been donated and will be kept current by various clubs, x-ray and cardiograph facilities and doctors treatment and consulting rooms.

The manor is decorated in color schemes and furnishings designed to provide a back-

ground of cheerful hominess. Residents in the manor may bring their own clothes, photographs, cosmetic items, radio or TV. A detailed study was made to provide only furniture particularly comfortable and safe for the senior citizen.

### Full Range of Services

Preparations have been made to care for the ambulatory, semi-ambulatory, bedfast and advanced senile. Services offered each resident include: 24 hour nursing service, physical and occupational therapy, oxygen for emergency use, special diets, bed time refreshments, personal laundry, routine annual chest x-ray, prayer room, barber-beauty care, recreational facilities and wheel chair storage.

### Recreation Encouraged

Residents of the manor are encouraged to continue old friendships. Friends, as well as relatives, are always welcome, without the restriction of visiting hours. Small private parties may be held in the large lounge. Parties to celebrate Christmas, birthdays and other holidays will be planned. Clubs are encouraged to hold their meetings in the lounge and residents are urged to continue memberships in their clubs.

### Fire-Proof Structure

Exterior walls are of concrete block and face brick. The entire roof framing is steel with metal deck, insulated with four inches of rock wool. The ceiling itself is of fiber glass panels installed on aluminum framing. Floors throughout are concrete slab.



All toilet and shower rooms have ceramic tile floors and wainscoat. Quarry tile is used in the kitchen and day room. All other floors, including patients' rooms and all corridors, are of vinyl asbestos tile. Doors are hollow-metal set in steel frames and windows throughout the building are of aluminum.

### **Applications for Residency Open**

Residents of Ruth Wilson Hurley Manor may come from any community in the United States, and are considered full members of the Coalgate community. Basic rates are based on the degree of care required by the resident's health. They range from \$150 to \$200 a month, based upon the medical report made out from the results of the physical examination. A report on the resident's health is sent to the nearest of kin.

The manor is planned in care, structure and equipment to give the type of care made possible by recent advances in medical knowledge. In conformity with this knowledge, senior citizens are offered excellent health care plus adequate interests and personal contacts to fill their emotional needs and lead healthier, more constructive lives.

### **American Fracture Association To Meet in November**

The American Fracture Association will hold its 20th Annual Meeting, November 1 through November 4, 1959, at the Roosevelt Hotel, New Orleans, Louisiana.

The first day of the meeting will be devoted to an instructional course with selected subjects and guest speakers. Scientific sessions will continue on the following three days. Discussions will not be prepared but will arise extemporaneously from the floor. All papers, with a few exceptions, will be limited to fifteen minutes. Problem cases may be brought for discussion accompanied by x-rays during the forum period.

A social hour has been planned for the evenings of November 1 and 3rd. Ample time will be available for individually planned tours, shopping and special entertain-

ment has been planned for the ladies attending the convention.

An optional trip has been planned for the morning of November 5th to tour the National Leprosarium, U.S. Public Health Service Hospital, located at Carville, Louisiana.

Tuition fee for the course, which has been approved for four and one-half hours credit, Category 2, by the American Academy of General Practice, will be \$10.00. Detailed information is available by writing to H. W. Wellmerling, M.D., Secretary-General, The American Fracture Association, 610 Griesheim Building, Bloomington, Illinois.

### **E. A. Johnson, M.D., Honored**

E. A. Johnson, M.D., Choctaw County's oldest doctor, both in age and service, was honored by his associates at a dinner given in his honor at the Memorial Hospital, Hugo, September 10. Doctor Johnson's fellow physicians and the board of control of the hospital chose his 79th birthday as the day to honor him for his nearly half century of medical practice, most of which has been spent in Choctaw county.

A native of Alabama, Doctor Johnson graduated from Atlanta Physicians and Surgeons College, coming to Hugo in 1919. He has a special interest in obstetrics and estimates that he has delivered 4,000 babies.

Friends and associates presented Doctor Johnson with an engraved plaque in recognition for his long period of service to his profession.

Concerning retirement, 79-year-old Edgar Johnson scoffs at the idea. "Retirement amounts to social rejection and, it even intimates uselessness. And, it might even be fatal," declared Hugo's dean of physicians. "I'm not retiring," he added, "I'll be practicing medicine as long as I can go."

Among the guests attending the dinner was Alfred T. Baker, M.D., President of the Oklahoma State Medical Association.



An Outstanding Example  
of Community Action

## Canton Steps Out for a Doctor

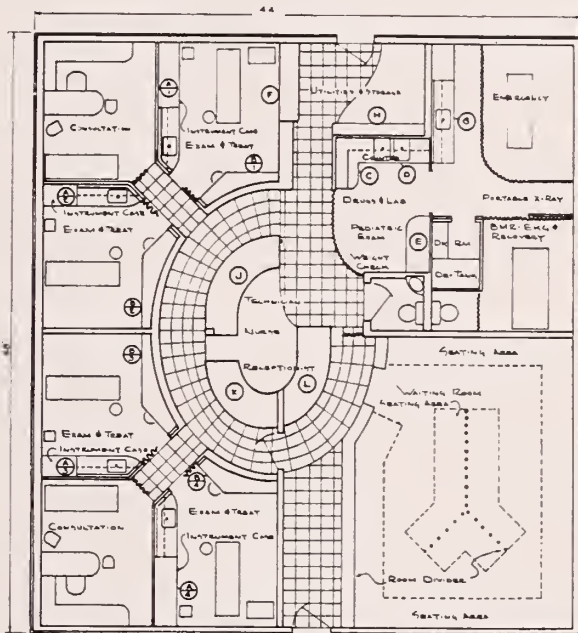
Canton wants a physician and is doing something about it. The citizens of this northwestern Oklahoma community recognized their poor competitive position in relation to larger cities and set about a realistic appraisal of their problems in an effort to make their city more attractive to a young doctor of medicine.

Canton's problem is not unique, but its approach to a solution is. Many small communities today are handicapped when competing for the services of doctors. Physical facilities are non-existent or inadequate and the modern-day physician must rely heavily upon adequate facilities and equipment if he is to achieve his full capabilities.

Coupled with the great advancements made in medicine—and the consequent need for more elaborate facilities and equipment—is the nationwide trend toward centralization that has taken place in the provision of all types of goods and services. As small town doctors die or move away, fewer younger doctors have moved in. In most cases this exodus has been offset by improved transportation to the extent that the people are served well by physicians in neighboring market centers.

The citizens of Canton, however, felt that they could support a medical facility of their own and decided that they wanted such a convenience. A Health and Welfare committee was formed and this group contacted the Sears-Roebuck Foundation for its assistance in determining the town's potential and planning a proposed medical practice unit.

A survey was conducted, the findings of which revealed that the community could support one and possibly two physicians.



It was estimated that about fifty patients left the Canton area daily for medical care and that nearly \$100,000 per year went with them for transportation, medicines and professional fees.

Encouraged by the findings of the survey, the committee met with representatives of the medical association and received their offer of assistance in obtaining a physician. Architectural plans for a two man unit were furnished by Sears, a \$35,000 bond issue was voted and the dream was on its way to becoming a reality.

It was agreed that the building would be offered to an incoming physician on a lease-purchase basis. Monthly rent has not been announced, but it will reportedly be handled on a non-profit arrangement.

Interested physicians should contact Earl Goode, Canton, Oklahoma.



## **"Aging" to Highlight Welfare Association Meeting**

A. L. Chapman, M.D., assistant to the Surgeon General and chief of the Division of Special Health Services, U.S. Public Health Service, will speak on health care for the aging during the annual Oklahoma Health and Welfare Association meeting November 16-18 in Oklahoma City.

Doctor Chapman will address a dinner meeting at 7 p.m., Tuesday, November 17. It is one of two sessions open to the public. At the second, at 10 a.m., Wednesday, November 18, Lieut. Gov. George Nigh will moderate a discussion of the Oklahoma report to the 1960 White House Conference on Children and Youth.

All general sessions, sectional meetings and forums will be held in the Biltmore hotel.

Two of the sectional meetings, which run concurrently, should be of special interest to physicians. Robert C. Lowe, M.D., associate professor of medicine and research consultant in hospital organization and administration, University of Oklahoma Medical Center, is chairman of a section on "Community Dimensions of Medical Care." Another section, with Forest R. Brown, M.D., Oklahoma State Department of Health, as chairman, will consider "Aging in a Modern World." Each will meet at 2 p.m., Monday, November 16 and at 9 a.m. and 2 p.m., Tuesday, November 17.

The "Community Dimensions of Medical Care" program will begin with a discussion of national patterns of change and trends in health care by the following panelists: Leonard Martin, Ph.D., director of AMA's Economic Research department; A. Guy Daniels, program representative, Hospital Facilities division, USPHS; Roy Stewart, *Daily Oklahoman* columnist.

Next "the consumer questions the experts," with a panel of "consumers," including Stewart and representatives of labor, industry and the rural public, quizzing a panel made up of Doctor Martin, Daniels and representatives of the Hospital Insurance council, Blue Cross-Blue Shield and the State Department of Public Welfare.

On the following day, section participants will move to "the Oklahoma Community and its Health Program — Sources and Resources." Speakers are Tom Carter, Oklahoma City, president-elect, Oklahoma Hospital Association; Paul Snelson, director of the state health department's Hospital Division; Mark R. Johnson, M.D., instructor in medicine at the University of Oklahoma Medical Center; Charles Green, M.D., Lawton, vice-president, Oklahoma State Medical Association; Mrs. Katherine Hudson, social worker, University of Oklahoma Medical Center.

A group work session on problems in community planning for health care services and facilities follows.

The section on aging will have Doctor Chapman and Waldo Stephens, Oklahoma City, chairman of the President's Committee on the Handicapped, as speakers.

A panel on planning for the later years will be composed of Stanley Kimler, M.D., clinical director of Central State Hospital; John W. DeVore, M.D., instructor in medicine at the OU Medical Center; Olive MacDonald, director of public health nursing for the Tulsa city-county Health Department; Elouise Faull, of the State Department of Public Welfare field service, and also representatives of housing, industry and employment.

## **Second Councilor District Meets in Ponca City**

The county medical societies of councilor District 11 held their traditional fall banquet at Ponca City's Country Club, September 15.

Nearly seventy-five physicians and their wives from the five counties of the district were present for the social hour and dinner. Councilor J. E. Murphree, M.D., presiding officer, introduced OSMA President Alfred T. Baker, M.D., who spoke to the group on association activities. Mrs. Clifford Bassett, President of the Woman's Auxiliary to the OSMA, also reported on the activities and projects of the distaff side of Oklahoma medicine.





### **Noted Psychiatrist to Address Student AMA**

Corbet Thigpen, M.D., psychiatrist author of "The Three Faces of Eve," will be the principle speaker at the annual banquet of the Oklahoma Chapter of the Student American Medical Association. The dinner, sponsored by the OSMA, is scheduled for the Petroleum Club, Oklahoma City, October 30.

Doctor Thigpen will address the group on the application of psychiatric techniques in the practice of medicine. In addition to the psychiatrist, other special invitees will be Russell F. Staudacher, Executive Secretary of the national Student AMA, and his associate, Mr. Robert Reed.

Officers and Councilors of the OSMA will receive invitations to serve as hosts to their future colleagues. It is estimated that three hundred students, physicians and guests will attend the event, which is designed as the kickoff meeting of an active year for the student's organization.

The Oklahoma Student AMA is one of the outstanding chapters of the nation. It was doubly honored last spring when William Kirkham, Ph.D., was elected national presi-

dent and Mrs. W. Stanley Muenzler was elected to the same office in the student auxiliary.

The president of the local chapter is Mel Brill.

### **Oklahomans Attend St. Louis Legislative Meeting**

Six representatives of the Oklahoma State Medical Association attended the AMA Medical Legislative Conference held October 2 and 3 in St. Louis. They were: President A. T. Baker, M.D., President-Elect Walter E. Brown, M.D., Council on Public Policy Chairman James W. Kelley, M.D., Federal Legislative Committee Chairman J. R. Stacy, M.D. and Executive Secretary R. H. Graham.

The group heard talks on the history of AMA legislative activities and legislative teamwork, presented by McKinnie L. Phelps, M.D., and F. J. L. Blasingame, M.D., respectively. In addition, panel discussions were conducted on such subjects as "H.R. 4700—What Has Been Done," "H.R. 4700—What Will Be Done" and "Political Action By Organized Medicine." Guest Speaker for the October 3 luncheon was Congressman Thomas B. Curtis, Missouri. The meeting was planned and directed by the AMA Council on Legislative Activities. John E. McDonald, M.D., Tulsa, is a member of the Council and was also in attendance.

### **Insurance for Senior Citizens . . .**

(Continued from Page 690)

or sentiment expressed. Upon receipt of the attitude of the board, the committee will draft its final recommendations and submit them for the approval, rejection or modification of the association's policy-making bodies.

Physicians attending the committee meeting were: A. T. Baker, M.D., President, Mark R. Johnson, M.D., Acting Chairman, R. G. Obermiller, M.D., E. K. Norfleet, M.D., F. C. Wallingford, M.D., Burge F. Green, M.D. and H. Thompson Avey, M.D.

A practical program for physicians who want a first hand review of the latest approaches to patient care.

144 outstanding specialists from every field in medicine will conduct the 13th Clinical Meeting. The four day program will feature: Round table sessions, panel discussions, symposia, lectures, closed circuit telecasts and motion pictures, plus 300 scientific and industrial exhibits.



american medical association

Round up time

# in **DALLAS** for **DOCTORS!**

the 1959 clinical meeting

# DECEMBER 14



The beautiful new Memorial Auditorium within walking distance from downtown Dallas is the site for the 13th A.M.A. Clinical Meeting. Completely air-conditioned, the Auditorium features 110,000 square feet of exhibit space, a 1,773-seat theater and 10 meeting rooms where the scientific sessions will be held. There is also a 1100-car parking lot adjacent to the building.

Dallas, population 1,050,000, is rapidly becoming one of the great convention centers of the nation. It combines old fashioned Texas hospitality with some of the most modern convention facilities to be found anywhere. It has excellent skyscraper hotels, and numerous night clubs and restaurants presenting top-flight entertainment.

Cultural facilities include the famous Margo Jones theatre, the Dallas Civic Opera and the Dallas Symphony Orchestra.

## PROGRAM HIGHLIGHTS

- The Role of Medicine in the Space Age**—Hubertus Strughold, Professor and Advisor for Research, School of Aviation Medicine, Randolph AFB
- Indications for Hysterectomy**—Willis H. Jondahl, Harlingen, Texas—Lecture
- Rheumatoid Arthritis**—W. Paul Holbrook, Tuscon, Ariz. Panel Moderator
- Colloidal Isotopes and Leukemia**—Joseph M. Hill, Dallas—Lecture
- Treatment of Diabetes**—Randall G. Sprague, Rochester, Minn.—Panel Moderator
- Infectious Diseases in Children**—Harris D. Riley, Jr., Oklahoma City—Panel Moderator
- Tranquilizers in Medical Practice**—Stewart Wolf, Oklahoma City—Lecture
- Surgical Approaches to Parkinson's Disease**—William W. McKinney, Fort Worth—Lecture
- Congestive Heart Failure**—James V. Warren, Galveston—Panel Moderator
- Peptic Ulcer in Rheumatoid Arthritis**—Lloyd G. Bartholomew, Rochester, Minn.—Lecture
- Immunization and its Future**—Blair E. Batson, Jackson, Miss.—Lecture
- Children's Eyes**—Tullos O. Coston, Oklahoma City—Lecture
- Obstetrical Emergencies**—Willis E. Brown, Little Rock, Ark.—Panel Moderator
- Hernia Repair**—Francis C. Usher, Houston—Lecture
- Premarital and Marital Counseling**—Oren R. Depp, New Orleans—Panel Moderator
- Anticoagulants and Choice of Drugs**—James W. Culbertson, Memphis, Tenn.—Lecture

## SYMPOSIA

- Anemia • The Problem Child • Iatrogenic Disease • Soft Tissue Injury • Biliary Tract Surgery • Intestinal Obstruction • Carcinoma of the Breast • Cerebrovascular Insufficiency



## Dallas Rapidly Becoming Leading Convention Center

The scene of the American Medical Association's 13th annual clinical session Dec. 1-4 will be in Dallas, Texas, called "Big D" by its residents.

Founded in 1841, metropolitan Dallas now has a population of more than a million persons, with some 680,000 living in the city itself.

Geographically situated at the center of the mid-continent oil fields, Dallas is headquarters for more than 1,000 firms in the oil production and allied industries.

Aircraft production, insurance, finance and banking, electronics, and regional wholesale distribution are the city's other leading industries. It is the home of more insurance companies than any other city in the nation.

Dallas is rapidly becoming a leading convention center, ranking ninth among convention cities in 1958. Its new Memorial Auditorium provides 110,000 square feet of exhibit space in addition to its other facilities for meetings. Dallas has over 200 hotels and motels with some 16,000 rooms.

Visitors find Dallas a fashion capitol, with its wide variety of fine stores that satisfy every taste and pocketbook. The city has also made its mark in the field of women's wear manufacturing.

Dallas is the home of Southern Methodist University, known throughout the country for its law and engineering courses, theological studies, school of business administration, and pre-medical courses.

The Southwestern Medical College of the University of Texas, Baylor Dental School, University of Dallas and Dallas Theological Seminary are also there. It has gained fame as a medical center and now has 29 hospitals. The Dallas County Medical Society has more than 1,100 members and the Dallas County Dental Society more than 400.

The park systems of Dallas, Highland Park and University Park include more than 100 different parks, with more than 6,500 acres. They are enjoyable throughout the

## Doctors Go on Blue Cross "County Rating Program"

Physicians and medical assistants who have been enrolled in the special, statewide Blue Cross program are now being transferred to the community groups in the counties of their residencies. The transfer, announced on September 15, places physicians and assistants under the "County Rating Program" inaugurated last year and will call for dues adjustments based upon the amount of care used in the county.

In explanation, the Blue Cross announcement described the action as a move "... in the interest of consistency and fairness to all members..." It was pointed out that localized responsibility for the determination of dues has had its effect throughout the state, and the three groups who can make or break the program—physicians, hospitals, public—should rightfully share this responsibility at the local level.

A new identification card and an interim dues notice was scheduled to reach the transferees by October 12. In keeping with dues collection policies employed for community groups, physicians will no longer be able to pay annually. All members will have a choice between quarterly or monthly dues payments.

The statement expressed concern that physicians would understand the importance of their personal dues being bracketed with their patients and neighbors. It was also mentioned that the physician's statewide group has always been one of high utilization, penalizing many of its members.

---

year because of the Texas climate. Outdoor activities are just as pleasant in mid-February as in August. There is only an occasional snow. Dallas is one of the few cities in the Southwest having a zoo in which most of the animals are displayed in native surroundings.

Dallas has a wide variety of entertainment, with some 70 theaters and many night-clubs and restaurants. There are Mexican, Swedish, Italian, German, Greek and Chinese restaurants.



## SMA Will Hold November Meeting in Atlanta

When Southern Medical Association holds its 53rd annual meeting in Atlanta November 16-19, it will mark the fifth time that the 13,000-member body has met in Georgia's Capital City.

Atlanta was chosen for the annual meeting in 1908, only two years after the association was formed, when membership numbered a mere few hundred from a half dozen Southern states. Doctor B. L. Wyman, Birmingham, was president. Scientific sections at the time of the 1908 meeting were only three in number—Surgery, Medicine and Otolaryngology—Compared to the comprehensive twenty of today.

Again in 1916, when Doctor Robert Wilson of Charleston, South Carolina, served as president, SMA chose Atlanta as its meeting place.

By 1926, membership in the association has expanded to include all of the 16 Southern states and the District of Columbia, now forming Southern Medical Association, when Georgia's Capital city was again chosen. Doctor C. C. Bass, New Orleans, was association president.

In 1953, when the number of scientific sections had climbed to the present 20 and membership had increased to 9,000 Atlanta again received the nod as the site for the annual meeting. This year, Doctor Walter C. Jones, Miami, Florida was president.

And now in 1959, with membership totaling a whopping 13,000, representing a phenomenal growth in the last few years, Atlanta is host once more to the medical association that is called one of the country's most influential and useful. Members include physicians from the Canal Zone and Puerto Rico, as well as the 16 Southern states and Washington, D. C.

Doctor Milford O. Rouse, Dallas, Texas is now president. At the concluding session, he will hand the reins of office to the president-elect, Doctor Edwin Hugh Lawson, New Orleans.

## Healdton Nurse Wins Lottinville Award



Patricia Ann Clark, of Healdton, displays the silver service she received as winner of the second annual Lottinville Award for Excellence in Nursing, presented September 6 at finishing exercises of the University of Oklahoma School of Nursing. She was chosen outstanding graduate by a committee representing the Oklahoma State Medical Association and the OU Schools of Medicine and Nursing. The award was established last year by Savoie Lottinville, director of the University of Oklahoma Press, to stimulate interest in nursing.

Atlanta is one of three cities among 28 of the South's largest which has been honored five times as the choice of SMA membership for its annual meeting. The other two are New Orleans and Miami. The important first organizational meeting was held in Chattanooga, Tennessee in 1906.

Southern Medical Association has also elected three presidents from Atlanta. They were Doctor Stewart R. Roberts, 1925; Doctor Frank K. Boland, 1937; and Doctor Edgar G. Ballenger, 1945.

## Brown to Head Surgeon's Group



Irwin H. Brown, M.D., Oklahoma City, took office as president and William Patton Fite, Sr., M.D., Muskogee, was named president-elect of the Oklahoma Chapter of American College of Surgeons at the annual meeting September 12 at Sequoyah State Park.

Doctor Brown, assistant professor of surgery and director of postgraduate education at the University of Oklahoma School of Medicine, succeeds Ralph A. McGill, M.D., Tulsa, a past-president of Oklahoma State Medical Association.

The surgeons also elected: Joe M. Parker, M.D., Oklahoma City, vice-president; Hays R. Yandell, M.D., Tulsa, secretary-treasurer; and Robert B. Howard, M.D., Oklahoma City, councilor.

Two American College of Surgeons fellows were cited for meritorious service. They were Doctor McGill and Clarence E. Northcutt, M.D., Ponca City.

Robert S. Myers, M.D., Chicago, assistant director of the College, commended the chap-

ter on its program aimed at prevention of athletic injuries, declaring the problem of "how to prevent boys from getting maimed and disabled is becoming something of great concern to doctors."

He also declared that efforts to stimulate young doctors to be interested in further research and training "can't help but make for better future care of patients."

He referred to the chapter's practice of selecting authors of the best papers pertaining to surgery at the annual Oklahoma House Staff association meeting to present the scientific program as chapter guests at the annual meeting.

Papers this year were presented by: Norman A. Cotner, M.D., now in general practice at Grove; C. A. Grimm, M.D., John Kyriacopoulos, M.D., and David D. Snyder, M.D., all residents at the OU Medical Center; Harold W. Calhoon, M.D., resident at Wesley Hospital, Oklahoma City; and Jack Stephenson, M.D., resident at St. Anthony Hospital, Oklahoma City.

## Regional AMA Conference On Aging Set for Kansas City

Kansas City's Hotel Muehlback will be the site for the AMA's Regional Conference on Aging, November 16-17. The conference, one of eight to be held nationally, is designed to explore the opportunities for positive health and meaningful living among older people through exercise of individual, group and community incentive.

Jointly sponsoring the event will be the state medical societies of Oklahoma, Missouri, Kansas, Illinois and Nebraska. The Oklahoma State Medical Association will be officially represented by Alfred T. Baker, M.D., President, J. W. Morledge, M.D., Chairman of the Committee on Aging and Don Blair, Associate Executive Secretary.

Other Oklahomans who will appear as speakers are: John W. DeVore, M.D., J. R. Stacy, M.D. and Edith Wallace, Daily Oklahoman columnist.





## Tulsa Physicians Honored

Doctor Marshall O. Hart (left), Councilor from Tulsa County, presents certificates of Life Membership in the Oklahoma State Medical Association to Doctor Luvern Hays (center) and Doctor H. W. Ford (right) of Tulsa. The presentation was made at the September 14th meeting of the Tulsa County Medical Society at the Blue Cross-Blue Shield Building. Doctor Hays recently retired from the practice of pediatrics; she entered practice in 1929. Doctor Ford, a member of the staff of the Tulsa Clinic, completed 50 years in the practice of medicine two years ago.

## M.D.'s May Deduct Income-Producing Entertainment

In a Special Ruling dated June 13, 1959, the Treasury holds that a physician may deduct the cost of entertaining other doctors (as well as patients), provided he can show that such expenses are clearly related to the production of income. In determining the deductibility of such expenses the Treasury will consider: (a) specific purpose of entertainment; (b) nature of taxpayer's practice; (c) period of practice and number of patients; (d) percentage of patients received as referrals; (e) names of those en-

tertained and reasons why additional income could reasonably be expected from them; (f) whether referrals were actually received from the doctors entertained; (g) number of times individual doctors were entertained during the year, inasmuch as repeated entertainment indicates a personal motive; and (h) whether other doctors in the same type of practice in the locality have entertainment expenses.

While this list of requirements may appear difficult to satisfy, they are actually only different aspects of the same point: Is there a reasonable expectation of referral business from the doctor entertained?

## Annual Meeting Plans Underway

Plans are now being formulated for the OSMA's 1960 Annual Meeting, scheduled for May 1-4 in Oklahoma City. Although in its early stages of development, the state's largest medical conference promises to be an outstanding affair.

General Chairman C. M. Bielstein, M.D., Oklahoma City, has taken a unique approach in developing the scientific program format by asking the presidents of sister medical organizations in the state to serve on the Program and Scientific Works Committees. According to Doctor Bielstein, some meetings of recent years have apparently not had sufficient universal appeal to achieve optimum attendance. It is hoped that permitting allied groups to have a voice in the planning will promote interest from specialists and generalists alike.

To encourage better attendance from specialty societies, the committees have agreed that the general program will end at 3:00 p.m., Monday, May 2, in time to permit related groups to conduct meetings of their own organizations that afternoon and evening. In the past, many societies met on the weekend preceding the OSMA event and the physicians returned home without registering at the state association function.

Presidents of the societies represented on the Scientific Works Committee are now contacting guest speakers of their respective choices. Doctor Bielstein is asking the committee to accelerate its efforts in order to assure early confirmation of the scientific portion of the program.

Serving on the Program Committee are: H. Thompson Avey, M.D., Oklahoma City; Irwin H. Brown, M.D., Oklahoma City; Edmond Kalmon, M.D., Oklahoma City; Walter Joel, M.D., Oklahoma City; J. R. Stacy, M.D., Oklahoma City; Jim Taylor, M.D., Oklahoma City; Norris Robertson, M.D., Oklahoma City; Roger Reid, M.D., Ardmore; Mark Everett, M.D., Oklahoma City; H. K. Sowell, M.D., Oklahoma City; Leonard Eliel, M.D., Oklahoma City; John Records, M.D., Oklahoma City; Bert F. Keltz, M.D., Okla-

homa City; and George H. Guthrey, M.D., Oklahoma City.

Serving on the Scientific Works Committee are: Bert F. Keltz, M.D., Chairman, Irwin H. Brown, M.D., Edmond Kalmon, M.D., J. R. Stacy, M.D., Jim Taylor, M.D., Norris Robertson, M.D., Roger Reid, M.D., Mark Everett, M.D., H. K. Sowell, M.D., Leonard Eliel, M.D., John Records, M.D., George H. Guthrey, M.D., and C. M. Bielstein, M.D.

## Editor, Staff to Attend Conference

Ben H. Nicholson, M.D., Editor of *The Journal*, Don Blair, Associate Business Manager, and Louise Martin, Editorial Assistant, plan to attend a national state medical journal conference in Chicago, October 26 and 27. The conference, which is under the direction of the State Medical Journal Advertising Bureau, is a biennial event designed to furnish state staffs with the latest information on medical journalism and advertising.

Topics for the program include: "New Trends in Magazine Format," "Abstracts from AMA Specialty Journals for Publication in State Journals," "Printing Costs Can Be Cut," "Indexing Techniques," "Legal Aspects" and "In Defense of the Printed Word As Means of Medical Communication." From the pharmaceutical industry, topics will be presented on such matters as research, marketing practices and cooperation between editors and advertisers.

## OU to Offer Course in Radioisotope Techniques

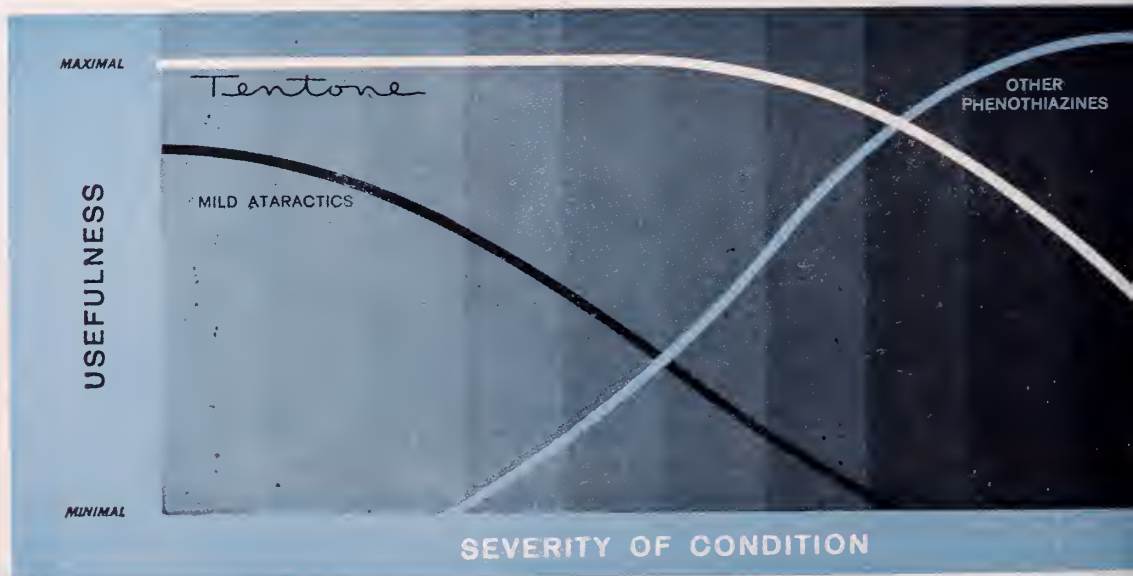
The University of Oklahoma has announced plans for a new extension course for industry to be held in Norman, November 2-6, 1959.

The course, Radioisotope Techniques, is designed for personnel who have the responsibility of handling radioisotopes, such as engineers, scientists, medical doctors and technicians. It is also of value to those persons who require a general background as to related problems in the use of radioactive materials.



new... highly effective tranquilizer

Comparison of TENTONE usefulness



..for extended office practice use

Tentone

Methoxypromazine Maleate

LEDERLE

NEW PHENOTHIAZINE COMPOUND FOR THE LOWER AND MIDDLE RANGE OF DISORDERS

◆ Positive, rapid calming effect in mild and moderate cases.  
◆ Striking freedom from organic toxicity, intolerance, or sensitivity reaction—particularly at low dosage. ◆ Greater freedom from induced depression or drug habituation. ◆ May be useful, as with other tranquilizers, to potentiate action of analgesics, sedatives, narcotics. ◆ Facilitates management of surgical, obstetric, and other hospitalized patients. ◆ Indicated when more than a mild sedative effect is desired...and less than psychosis is involved. ◆ Dosage range: *In mild to moderate cases:* from 30 to 100 mg. daily. *In moderate to severe cases:* from 75 to 500 mg. daily.

**LEDERLE LABORATORIES**, a Division of **AMERICAN  
CYANAMID COMPANY**, Pearl River, New York

 Lederle

Supplied



10 mg. tablets

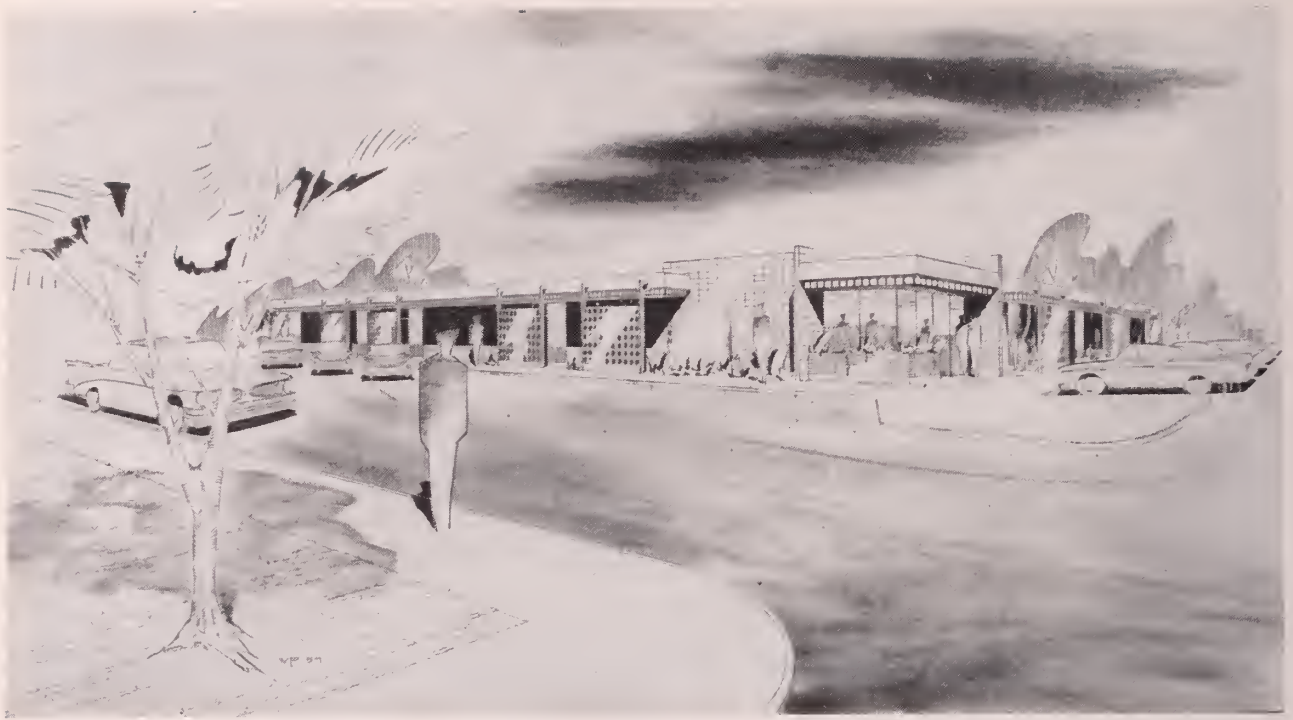


25 mg. tablets



50 mg. tablets





### **Six Muskogee Physicians Plan New Offices**

Six Muskogee physicians plan to office in a new Eastern Hills Building now under construction at 16th and Okmulgee in Muskogee.

The physicians are W. N. Weaver, M.D., Joseph James, M.D., W. S. Dandridge, M.D., Glen Berkenbile, M.D., Ben Gaston, M. D., and Mary Hamilton, M.D. Also officing in the building will be Joe Teaff, D.D.S.

Construction was started August 25 and is expected to be completed early in 1960. The building, designed by Turnbull, Mills, Benham and Company, architects and engineers, Oklahoma City, will provide separate street entrances to each suite as well as private rear entrances. Masonry solar screens will emphasize and shade the entrance to each suite. Each suite will have its own control thermostat for the central year-round air conditioning.

Plans include a large lounge on the basement level for building tenants. A pharmacy will be centrally located on the ground level.

The building will be owned and operated by the Eastern Hills Building Company of Muskogee.

### **M.D.'s Send \$717 to AMEF in August**

Twenty-four Oklahoma physicians and the Woman's Auxiliary to the OSMA contributed \$717.00 to the American Medical Education Foundation during the month of August.

The Average contribution was slightly less than \$30.00 each, and two physicians contributed more than once during the month.

Formed in 1951 by the American Medical Association, the A.M.E.F. is dedicated to

the private support of the nation's eighty-two medical schools. Contributions to the Foundation assure the continuation and expansion of medical education by providing yearly grants to each school in support of its teaching budget.

Contributions, which may be earmarked to the school of the physician's choice, should be payable to the American Medical Education Foundation, 535 North Dearborn Street, Chicago 10, Illinois.

# 25 YEARS AGO



Articles published in *The Journal* of the Oklahoma State Medical Association, October, 1934.

## SKIN GRAFTING

John F. Burton, M.D., F.A.C.S., Oklahoma City

There are many erroneous ideas relative to skin grafting. Whether these are due to the dramatic possibilities offered by newspaper publicity, to misinterpretation of results, lack of adequate observation, or just intentional lack of respect for the truth, I know not. I do know that I am constantly hearing bizarre tales and results reported that cannot be duplicated by careful, conscientious scientific effort. During the past three years I have given this subject considerable study and experimentation and what I bring you is somewhat of a summary of my observations and review of what is definitely known and proven about this subject.

Skin grafting has long been practiced, but rather sporadically. During the last few years there has developed definite trend to its more often and satisfactory use. Various factors have brought this about, the most important being:

1. An economic factor—in that it shortens the period of disability, decreases the time of hospitalization, and lessens the amount of dressings.
2. A cosmetic factor—in that it obviates unsightly scars; replaces objectionable birthmarks, and covers up defects caused by radical surgery.
3. An adjunct of therapy—in that it can be used as a corrective as well as restorative measure in deformities, either congenital or acquired, and thereby aiding the surgeon in establishing as nearly as possible a complete anatomical, functional and physiological result.

During the past few years considerable work by Neuhoff, Loeb and Padgett has been done relative to transferring skin from one individual to another and all with the same result—it cannot be done. Time does not permit a discussion of this, but according to Loeb, there is a certain definite integral of differentiation for individuals skin and this is different from all others.

## "Jack of All Trades"

Occupational medicine *might* be defined as that branch of medicine concerned with diagnosis, treatment and prevention of ailments peculiar to various vocations. From even this general definition it is obvious that it is far more complex than the finger-wrapping chores of the old company doctor.

Diagnosis in the early days of occupational medicine was usually limited to ascertaining the extent of physical trauma. Now it combines the best diagnostic acumen of the internist, nearly all the known laboratory procedures of medicine, physics and chemistry plus a liberal dash of F.B.I. technic. These disciplines are necessary as modern occupational medicine deals not only with direct and obvious physical injuries but also encompasses the effects of heat, light, noise, pressure, radiation and a continually multiplying host of chemical agents of known and unknown toxicity. Yet this is not all. The specialist in occupational medicine is often called upon to diagnose, treat and prevent the "noxious" effect of personalities and environments which can sap the health and efficiency of workers. He must truly know the total milieu of the employees he is called upon to counsel and treat.

Ideally, practice in occupational medicine is, and always should be aimed at prevention so that need for definitive therapy is reduced to the vanishing point. This is achieved only through the physician's full understanding of the operational scope of the industry he serves plus close cooperation with the industrial hygienist and the safety department. These plus continual vigilance will bring the actual treatment of industrial trauma and disease to a minimum.

Prepared by  
OSMA Committee on Occupational Medicine



# Auxiliary News

## Questions

The following question was made by a woman from a small Oklahoma town to Auxiliary members attending a district meeting for the White House Conference on Youth: "We have one doctor in our town; we have a nice hospital—but not a single R.N. 'Our' nurse drives thirty miles from another town once a week. Why do we not have qualified nurses and technicians in our community?"

## Paramedical Careers

Our answers and suggestions are not pertinent here. But it was a great satisfaction for us, as Auxiliary members, to be able to give some constructive ideas on community planning; and most particularly, to explain what we are doing to extend our Paramedical Careers program.

Formerly called Nurse Recruitment, this project was recently changed to encompass the more than 150 paramedical careers available to youth today, to encourage high school students early to recognize the need and opportunities in these fields.

This is how our program functions: the Auxiliary contacts principals of each high school, explaining the procedure for organizing a Future Nurses' Club in their school. (A name change is in order.) School nurses, teachers or Auxiliary members serve as sponsors. Through regular study meetings (this is in no way a social program), Career Day workshops, visits to local and state hospitals and institutions, and interviews with nurses and technicians, interest is kindled for future training. Annually a Future Nurses' Field Day is conducted, attracting students from clubs throughout the state.

## Nurse Loan Fund

The Auxiliary's other project in "follow-through" is our very beneficial Nurse Loan Fund; this fund extends loans to any appli-

cant who has been accepted by any accredited school of nursing in Oklahoma.

Once a young lady has begun her training, our interest does not stop. Personalized courses in grooming and posture, office and telephone etiquette are conducted by some Auxiliaries; transportation is furnished for schools of nursing to attend special instructional or regional meetings; graduating seniors are given teas and recognition ceremonies by many Auxiliaries.

These two constructive Auxiliary projects, Paramedical Careers and Nurse Loan Fund, are not only assisting physicians, hospitals, and laboratories—they demonstrate our group action toward bettering community health.

## Book Review

SURGERY IN WORLD WAR II. NEUROSURGERY, VOLUME I, Office of the Surgeon General, Department of the Army, U. S. Printing Office, Washington, D.C., 1958, pp. 336. Price \$9.00

This is a volume that most general surgeons and neurosurgeons might like to have in their library. "This story, as in all other volumes of the history of medical department in this war, includes a frank statement of errors and failures as well as a record of brilliant success achieved in this specialty. . . . It was the unconquerable spirit which underlay the brilliant record of neurosurgery in head injuries in World War II." This volume covers administrative considerations and head injuries. It is of historical and practical interest. This and other related volumes now being published should be available in the event of an atomic disaster, for all to profit by the experiences and planning of recent past years. The description of clinical problems and management of head injuries by sharp and blunt trauma, missile and blast are excellent.—*John A. Schilling, M.D.*

# Deaths

GERSTER W. BROWN, M.D.  
1903-1959

Gerster W. Brown, M.D., 56-year-old Oklahoma City physician, died near Eagle, Colorado, September 4, 1959.

Doctor Brown, a native Oklahoman, graduated from the University of Oklahoma School of Medicine in 1930. He specialized in Industrial Surgery.

During World War II, Doctor Brown served as a Lt. Commander, USNR, at a base hospital in New Guinea.

O. E. HOWELL, M.D.  
1877-1959

O. E. Howell, M.D., 82-year-old Norman physician, died September 13, 1959.

A native of Jameson, Missouri, Doctor Howell graduated from Central Medical College, Missouri in 1900. He began his practice in Independence, Missouri, moving to Creek Nation, Indian Territory in 1904. Twenty-five years later, Doctor Howell moved to Norman where he practiced until his retirement in 1942.

In 1948, Doctor Howell was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with an Honorary Membership.

O. R. GREGG, M.D.  
1885-1959

O. R. Gregg, M.D., 75-year-old Norman physician, died August 23, 1959.

Doctor Gregg graduated from Southwestern School of Medicine and Hospital, Kansas City, Missouri in 1908. Before moving to Norman in 1948 to direct the Cleveland County Health Department, he held a similar post for the McClain-Choctaw health unit at Hugo. Prior to that time he had been in private practice in Enid.

In addition to his work with the County

Health Department, Doctor Gregg served for a time as medical director of the Cerebral Palsy Institute in Norman.

Earlier this year he was honored for his years of service to the medical profession when the Oklahoma State Medical Association presented him with a Fifty-Year Pin. In April the association awarded him an Honorary-Life Membership.

NATHAN BOGGS, M.D.  
1879-1959

Nathan Boggs, M.D., who completed 50 years of medical practice last year, including 34 years in Oklahoma City, died August 31, in Guymon, Oklahoma.

Born in Richard Center, Wisconsin, Doctor Boggs graduated from Rush Medical School, Chicago, in 1906 and began his practice two years later in Kansas City, Missouri. He moved to Oklahoma City in 1918 where he remained until moving to Goodwell in 1952. In Goodwell, he served as staff physician for Panhandle A & M College.

In 1957, Doctor Boggs was honored when the Oklahoma State Medical Association presented him with a Life Membership in recognition of his years of service to the medical profession.

ROBERT F. LOUGHMILLER, M.D.  
1912-1959

Robert F. Loughmiller, M.D., 46-year-old Oklahoma City physician, died September 22, 1959.

A native of Oklahoma City, Doctor Loughmiller graduated from the University of Oklahoma School of Medicine in 1937. From 1938 to 1944, he was a flight surgeon with the rank of Lieutenant Colonel. In 1945, he established his practice in Oklahoma City where he specialized in eye, ear, nose and throat.

Doctor Loughmiller was a member of the American Board of Ophthalmology and Otolaryngology.



## PHYSICIAN PLACEMENT

### Dermatology

Thomas E. Slimp, M.D., 323 West Livingston Place, Metairie, Louisiana, VE 3-4322, age 42, married, Syracuse Medical School, 1950, board certified January 1, 1960. No military obligations, available January 1, 1960.

### General Practice

Donold D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, Oklahoma University School of Medicine, 1958, no military obligations, available immediately.

Johnny Bill Delashaw, U.S.P.H.S. Hospital, Wyman Park Drive and 31st Street, Baltimore 11, Maryland, age 27, married, University of Texas Medical Branch, 1959, available July 1960.

D. H. Bessesen, M.D., Grand Canyon Hospital, Grand Canyon, Arizona, age 61, married, University of Minnesota, interested University Health Service, available October 1, 1959.

Sherman Allen Hope, M.D., 1105 Yale Ave., Panama City, Florida, PO 3-6656, age 27, married, University of Oklahoma School of Medicine, 1957, available July 1960.

Paul J. Vega, M.D., 6070 Orleans Ave., New Orleans, Louisiana, Au-2584, age 26, married, Louisiana State University, 1956, no military obligations, available now.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, Tulane, 1943, veteran, has interest in teaching, availability date depends on situation.

### Internal Medicine

Richard I. Hochman, M.D., 37, Badger Road, Annapolis, Maryland, 31, married, New York University, 1952, available October 1, 1960.

Van B. Saye, Jr., M.D., 1230 Brockenbraugh Court, Metairie, Louisiana, VE 5-1968, age 28, married, Medical College of Georgia, 1954, Air Force Reserve, available July 1, 1960.

### Locum Tenens

Arnold Giesbrecht, M.D., Hallock, Minnesota, age 34, married, graduate Winnipeg, Manitoba, 1957, prefers suburban or locality close to cities.

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for one week, available after July 1, 1959.

James D. Green, M.D., second year resident in Internal Medicine at St. John's Tulsa, desires one year of Internal Medicine practice before taking third year of training. Prefers clinic in city of 50,000 or greater population.

### Obstetrics and Gynecology

Lynn W. Abshire, M.D., 708 N.E. 14th, Oklahoma City, CE 6-8087, age 31, married, University of Oklahoma School of Medicine, 1956, American College of OB-GYN, no military obligations, available July 1, 1960.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, University of Texas, 1953, board qualified, veteran, available in July 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, University of Minnesota, 1955, board eligible upon completion of fellowship, veteran, available July 1, 1959.

Nejdat Mulla, M.D., 1110 Belmont Avenue, Youngstown, Ohio, age 36, married, University of Geneva, Switzerland, 1952, American College of OB-GYN, not eligible military service, available July 1, 1960.

Harold G. Ray, M.D., 212 Darien Place, Box 503, Balboa Heights, Canal Zone, age 28, married, University Arkansas School of Medicine, 1955, now in active reserve, available July 1, 1960.

Alvon C. Winegar, M.D., 1940 Michigan, WA 6-6834, Benton Harbor, Michigan, age 41, married, Wayne University, 1942, no military obligation. available early 1960.

## Surgery

(Name on Request) 32 years old, married, Tulane, 1952, veteran, board eligible.

Johnson P. Graves, M.D., Box 142, Pulaski Heights Station, Little Rock, Arkansas, age 36, married, Arkansas School of Medicine, 1950, board eligible, no military obligations, available Fall 1959.

## Urology

Charles Lee Reynolds, Jr., M.D., 5012 Rockport Drive, Dallas, Texas, age 32, South Western Medical College, Dallas, 1949, board eligible, married, no military obligations, available July 15, 1960.



## Have You Heard?

FRANCIS W. PRUITT, M.D., is the new coordinator of medical education at Tulsa's Hillcrest Medical Center. Doctor Pruitt, a Brigadier General, has served twice as Chief of Medicine at Walter Reed Medical Center in Washington, D.C. In addition to his work in medical education, he will direct Hillcrest's outpatient department.

JOAN K. HIETT, M.D., has joined the staff of the Altus Medical and Surgical Clinic at 1101 East Pecan. Doctor Hiett limits her practice to pediatrics.

ROBERT E. ENGLES, M.D., and his wife, ESTELLE ENGLES, M.D. have joined the Doctors Leroy and Raymond Engles, in practice at the Engles Clinic, Durant. They came to Durant from Austin, Texas where he had been with the U.S. Public Health Service and she was with the Texas State Health Department.

ED BRASHEAR, M.D., has recently opened his offices in Barnsdall. Doctor Brashear is a graduate of the University of Oklahoma School of Medicine.

J. WALKER MORLEDGE, M.D., has been named medical director in charge of clinical education at Mercy Hospital, Oklahoma City. Doctor Morledge served as chief of staff at Mercy from 1937 to 1958. For the past year and a half, he has been head of the Department of Medicine at McCord Zulu Hospital, Durban, South Africa.

GERALD C. ZUMWALT, M.D., recently with the U.S. Air Force, has opened his offices in Sapulpa. Doctor Zumwalt attended the University of Oklahoma School of Medicine and is a native of Vinita.



# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER POSTGRADUATE PROGRAM\* Individual Postgraduate Courses

BASIC ELECTROCARDIOGRAPHY — February 29 through March 5.

OPHTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 3 and 4.

OBSTETRICS-GYNECOLOGY SYMPOSIUM—March 5.

ADRENAL STEROIDS—March 24, 25, and 26. (Third Oklahoma Colloquy on advances in Medicine.)

ORTHOPEDIC SYMPOSIUM—April 22 and 23 (this date is tentative).

CARCINOMA OF THE SKIN—May 6 and 7. (Sixth Annual Combined Surgery, Radiology, Pathology Symposium.)

OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—Date to be determined.

## SERIAL POSTGRADUATE COURSE Postgraduate Division Oklahoma City, Oklahoma 1959-1960

Wednesday Short Courses

3:30 to 8:30 p.m.

- |         |  |
|---------|--|
| Sept. 9 | Renal Diseases<br>Guest Lecturer: Maurice B. Strauss, M.D.<br>Boston, Massachusetts                |
| Oct. 14 | Endocrine Disorders  |
| Nov. 11 | Surgical Diagnosis Symposium   |
| Dec. 9  | Renal Diseases in Childhood  |
| Jan. 13 | Carl Puckett Memorial Lecture and Infectious Diseases Symposium                                    |
| Feb. 10 | Rehabilitation of the Cardiac Patient<br>Guest Lecturer: William Tucker, M.D.,<br>Washington, D.C. |
| Mar. 9  | C. B. Taylor Lectureship and Urology Symposium—Guest Lecturer to be announced                      |
| Apr. 13 | Anesthesia for the Part-time Anesthetist   |
| May 11  | Neurological Diseases in Childhood   |
| June 8  | Surgery  |

\*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

## 6th ANNUAL CANCER SYMPOSIUM December 5, 1959 Skirvin Hotel Oklahoma City

The 6th Annual Cancer Symposium, American Cancer Society, Oklahoma Division, will be held at the Skirvin Hotel, December 5, 1959. Subject of the meeting will be "Cancer of the Breast."

## THE UNIVERSITY OF TEXAS POSTGRADUATE SCHOOL OF MEDICINE Course in Cardiology

December 7-11, 1959 Texas Medical Center  
Houston, Texas

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959 will be Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London). The guest lecturer from London will present a course in cardiology at the Texas Medical Center December 7-11.

For further information write to Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

## AMERICAN HEART ASSOCIATION 32nd Annual Scientific Sessions

Trade and Convention Center October 23-25, 1959  
Philadelphia, Pennsylvania

The 32nd Annual Scientific Sessions of the American Heart Association will be held at the Trade and Convention Center in Philadelphia, October 23-25, 1959. Forms for registering and for reserving accommodations are now available from the Association, 44 East 23rd Street, New York 10, New York.

## 41st Annual Meeting of the SOUTHWESTERN MEDICAL ASSOCIATION

November 5, 6, 7, 1959 Roswell, New Mexico

The 41st Annual Meeting of the Southwestern Medical Association in conjunction with the New Mexico Chapter, American Academy of General Practice will meet November 5, 6, 7, 1959 at Roswell, New Mexico. Topic for the meeting, which is approved for 12 hours credit (Category 1) by the AAGP, will be Pediatric Medicine and Surgery.

## AMERICAN FRACTURE ASSOCIATION November 4, 1959 Roosevelt Hotel New Orleans, Louisiana

The 20th Annual Meeting of the American Fracture Association will be held in the Roosevelt Hotel, New Orleans, Louisiana, on November 4, 1959. Details may be obtained by writing to H. W. Wellmerling, M.D., Secretary-General, The American Fracture Association, 610 Griesheim Building, Bloomington, Illinois.

## **Principles of Medical Ethics**

It is desirable to re-examine occasionally the principles of medical ethics. The frequency depends a good deal on the conditions of the times. Medical topics have such an appeal to the public that the slicks and the lay press have gotten into the picture to a degree that has made it difficult for the physician to know what is proper and what is not. A more serious aspect is the desire for or need of money. While the love of money has been considered the root of evil for the individual, it is now apparent that the love of money can be the root of evil for an institution as well. An institution for medical service cannot be effective or even operate without medical personnel. It is, therefore, often deemed necessary to include data about medical personnel in material printed for lay consumption. To what extent can this be considered ethical?

The Judicial Council of the American Medical Association "does not believe it is appropriate to define terms not used in the Principles which connote unethical conduct because neither definition nor description determines the ethical nature of conduct." (1954 Report.)

It, therefore, is incumbent upon the individual, the group and the institutions to apply the spirit of the Principles of Medical Ethics to their own conduct. The spirit is expressed in the Preamble to the Principles of Medical Ethics as follows:

"These principles are intended to serve the physician as a guide to ethical conduct as he strives to accomplish his prime purpose of serving the common good and improving the health of mankind. They provide a sound basis for solution of many of the problems which arise in his relationship with patients, with other physicians, and with the public. They are not immutable laws to govern the physician, for the ethical practitioner needs no such laws; rather they are standards by which he may determine

the propriety of his own conduct. Undoubtedly, interpretation of these principles by an appropriate authority will be required at times. As a rule, however, the physician who is capable, honest, decent, courteous, vigilant, and an observer of the Golden Rule, and who conducts his affairs in the light of his own conscientious interpretation of these principles will find no difficulty in the discharge of his professional obligations."

"The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual." Chapter 1, Sec. 3.

The Principles of Medical Ethics do not proscribe advertising as such; they proscribe the solicitation of patients. Solicitation, as used in the Principles, means to attempt to obtain patients by persuasion or influence.

"Solicitation of patients, directly or indirectly, by a physician, by groups of physicians or by institutions or organizations is unethical. This principle protects the public from the advertiser and salesman of medical care by establishing an easily discernible and generally recognized distinction between him and the ethical physician. Among unethical practices are included the not always obvious devices of furnishing or inspiring newspaper or magazine comments concerning cases in which the physician or group or institution has been, or is, concerned. Self-laudations defy the traditions and lower the moral standard of the medical profession; they are an infraction of good taste and are disapproved.

The most worthy and effective advertisement possible, even for a young physician, especially among his brother physicians, is the establishment of a well-merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct. The publication or circulation of simple professional cards is approved in some localities but is disapproved in others. Disregard of local customs and offenses against recognized



ideals are unethical." Chapter 1 Sec. 4, 1955 Edition of Medical Ethics.

Annotations of this subject by the Judicial Council are as follows:

#### **Advertising by Groups**

"Many of the questions submitted to the Council involve the subject of advertising. As is well-known, there is a marked tendency of late for physicians to organize themselves into so-called groups under various designations, such as group clinics, diagnostic clinics, group medicine, medical institutes, the (blank) medical academy, and similar names. Unfortunately some of these groups are advertising in a manner that would be considered most reprehensible if done by an individual physician. The Council is unable to see any difference in principle between a group of physicians advertising themselves under whatsoever title they may assume and an individual physician advertising himself. (1922 Report)"

#### **"Advertising" Determined by Factor in Each Case**

"There was submitted to the Council an inquiry as to whether a given advertisement of a certain medical institution, which the institution desired to run in the public press, was ethical or unethical, and if not ethical, wherein specifically it was unethical. The answer to this question cannot be based solely on the wording of the advertisement. It is perfectly evident that an advertisement

which would be proper under one set of conditions might be highly improper under a different set. (1922 Report)"

#### **Review of Advertising Practices Obligation of Local Societies**

"A great many communications have been received with respect to advertisements used by individual physicians, groups, clinics, pay clinics and hospitals owned by individuals or groups. Practically all of the advertising that has been submitted, has been found objectionable. This Council wishes to state, however, that the members of the state associations who use objectionable advertising are responsible to and under the control of the censorial agencies of the societies of which they are members. The Secretary has been directed, therefore, to refer communications of this nature to the secretary of the constituent medical association concerned, with the suggestion that they should be brought to the attention of the board of councilors, or through them to the attention of the board of censors of the component society concerned. (1923 Report)"

The responsibility for maintaining his own conduct in line with ethical standards is the physician's—no institution or group can dilute or negate this responsibility. The whole idea is the protection of the public and the establishment of rules of conduct among members of the profession, but solicitation of patients under any guise is unethical.

APPETITE, *n.* An instinct thoughtfully implanted by Providence as a solution to the labor question.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

W. R. RICHARDSON, M.D.

D. W. FOERSTER, M.D.

## Causes of Burns in Oklahoma

William R. Richardson, M.D., graduated from Harvard Medical School in 1944 and has been certified by the American Board of Surgery. He is Professor of Pediatric Surgery and Chief of Surgery at the Children's Memorial Hospital, Oklahoma City.

Doctor Richardson is a Fellow in the American College of Surgeons, a member of the American Academy of Pediatrics and the Southwestern Surgical Congress.

David William Foerster, M.D., graduated from the University of Oklahoma School of Medicine in 1958. He is now a resident in surgery at the same school.

A Study of the Causes of the Severe Burns Treated at the University Medical Center 1954 through 1958.

THE MAGNITUDE of the human damage caused by thermal burns is emphasized by statistics from many sources. Of the more than 70,000 burns recorded annually in the U.S.A. nearly 10,000 prove fatal. Of these, 70% occur in the home area and a majority of those burned are children or elderly adults.<sup>1</sup> In the 1958 report of the Oklahoma Crippled Children's Commission,<sup>2</sup> the burn is the leading single diagnosis when ranked by either the number of cases, number of days hospitalized, or Commission dollars expended. Thermal burns exceeded the next two ranking diagnoses, acute rheu-

matic fever and spina bifida, by 90% and 40% respectively.

In spite of extensive research, effort, and progress in the fields of parenteral fluid therapy, nutrition, antibiotics, skin grafting, etc., improvement in the mortality associated with the extensive burn has been disappointing<sup>3</sup> and the morbidity remains appalling. It appears reasonable to conclude that ultimate major advances must arise in the field of prevention. A study of causes seemed a logical early step in a program aimed at burn prevention. This series from the University of Oklahoma Medical Center may not be truly representative of the burns suffered throughout the state, but should still provide the best single source of historical information on patients from all parts of the state. Use of a recent five-year period provides an adequate number of

**Death and disability from burns remain appalling. Prevention is the only good treatment. Etiologic data from our own state implicate at least two factors worthy of attack.**

From the Department of Surgery, University of Oklahoma School of Medicine.

TABLE 1  
General Classification of Causative Agents

	No. of Patients	Clothing Ignited
I. Stoves	69	62
A. Gas Ranges	7	6
B. Gas Heaters & Stoves	40	36
C. Wood Burning Stoves	4	4
D. Kerosene & Oil Stoves	5	5
E. Floor Furnaces	1	0
F. Unknown Type Stoves	12	11
II. Inflammable Liquids	43	35
A. Kerosene		
1. Starting or aiding fires	9	7
2. Other Use	1	1
B. Gasoline		
1. Carburetor Explosions	3	1
2. Starting or aiding fires	4	4
3. Cleaning Purposes	2	2
4. Other Use	12	8
C. Oil		
1. Starting or aiding fires	1	1
D. Cleaning Fluids	2	2
E. Ignition of Fuel		
Soaked Clothes	9	9
III. Open Fires		
(other than stoves)	39	35
A. Matches	12	12
B. Trash Fires	10	10
C. House Fires	10	7
D. Wood Burning Fireplaces	3	2
E. Brush and Grass Fires	2	2
F. Camp Fires	2	2
IV. Scalding Liquids	33	0
A. Water		
1. Off Stove	6	0
2. Coffee and Tea	6	0
3. Wash Water	8	0
4. Vaporizers	3	0
5. Hot Water Bottle	1	0
6. Unknown	1	0
V. Miscellaneous	29	12
A. Auto Accidents	5	1
B. Butane & Propane Explosions	5	3
C. Electrical	2	2
D. Chemicals	3	2
E. Pipeline Explosions	2	2
F. Candles	4	0
G. Cigarette Ignited Clothes	1	1
H. Hot Water Heater	1	0
I. Welding Torch	1	1
J. Ignited Bed Clothes	1	1
K. Chicken House Fire	1	1
L. Hot Pavement	1	0
M. Pressing Iron	1	0
VI. Cause Unknown	19	7
GRAND TOTAL	231	153

cases and is consistent with the aims of preventive medicine where emphasis is implicitly on the present and future.

### Materials and Methods

The records of 231 consecutive patients with second and third degree burns admitted to University Hospitals, Oklahoma City, from January 1, 1954 to January 1, 1959 were reviewed. The apparent causative agent of all but 19 cases was ascertained either by chart history or by correspondence. Other data collected include age, sex, race, body areas burned, per cent of body burned, degree of burn, number of surgical procedures, number of days hospitalized, dollar cost of hospitalization and early follow-up care. Only items pertinent to our subject will be reviewed here.

### Results

A general classification of the causative agents is presented in table 1. In reviewing the 231 cases, six major groups could be delineated: stoves (69); inflammable liquids (43); open fires other than stoves (39); scalding liquids (33); miscellaneous (28); and unknown cause (19). This classification is somewhat similar to that used by British investigators who have pioneered the modern investigations of civilian burn prevention.<sup>4,5</sup>

Each of the major groups was further broken down as to the specific agent of ignition. Gas heaters and stoves accounted for 40 burns and constituted by far the most common specific etiologic item. No doubt several of the 1 stove burns of unknown type were also inflicted by gas appliances.

Consideration of the mechanisms by which the various agents effected damage immediately points out a common denominator—the ignition of clothing. Of the 231 patients burned, 153 or 66% involved ignition of clothing. This figure increases to 78% if scalds are excluded. Clothing burns showed no statistical predilection for upper or lower body surfaces.

Table 2 indicates that stove-burned patients tended to be slightly younger and more often female (2:1 ratio). A similar predominance of males is reflected in the inflammatory liquids and miscellaneous



TABLE 2

## Relation of Causative Agents to Age, Sex and Race

Causative Agent	Average Age in years	Sex	Race
I. Stoves	15	Fe-48 M-21	W-47 C-20 Ind.-2
II. Inflammable Liquids	17	Fe-15 M-28	W-32 C- 9 Ind.-2
III. Open Fires	22	Fe-20 M-19	W-27 C-11 Ind.-1
IV. Scalding Liquids	17	Fe-16 M-17	W-26 C- 7
V. Miscellaneous	20	Fe- 7 M-21	W-21 C- 4 Ind.-3
VI. Cause Unknown	23	Fe- 9 M-10	W-13 C- 6
TOTAL	18 yrs.	Fe-115 M-116	W-116 C- 57 Ind.- 8

groups. Racial distribution is not remarkable and is comparable to the University Hospitals' general admission pattern. Further analysis of the age data is presented in table 3 with correlation groups arbitrarily established as follows: under one year rep-

resenting pre-walking infants; 1-5 years representing pre-school children in a predominantly home environment; 6-11 years, elementary school children away from home part of the time; 12-18 years, junior and senior highschool students; 19-65 years, the adult working age group; and over 65 years representing the elderly or retired segment. Again stove or heater burns were prominent in all but the infant group.

Table 4 presents an attempt to correlate cause with severity as measured by body surface area and depth of the burn. It was not possible to determine from the records the precise or even relative proportions of second and third degree involvement in all cases; therefore, if any part of the burned area was full-thickness third degree, the patient was arbitrarily classified as third degree. The occurrence of nine (19%) very extensive burns (over 50% surface area) in the 43 burns caused by inflammable liquids is emphasized. About three-fourths of the total series had some third degree involvement with the exception of the scald group.

Table 5 permits correlation of the causative agent with length, cost and complexity of the hospital care period as reflected by

TABLE 3

## Relation of Age Grouping to Causative Agents

Age Group	Total Patients	Stoves	Inflammable Liquids	Open Fires	Scalding Liquids	Unknown	Miscellaneous
<1	6	1	0	0	2	2	1
1-5	83	26	1	16	18	7	9
6-11	52	21	16	6	3	2	4
12-18	19	6	5	3	1	1	3
19-65	59	12	15	12	6	3	11
>65	12	4	0	2	3	3	0

TABLE 4

## Relation of Causative Agents to Burn Severity

Causative Agent	Percent of Body Burned Average	(Range)	Greatest Degree of Burn	Percent of Cases with 3°	Fatalities (Mortality rate)
I. Stoves	20%	(1 to 65)	2°-10 3°-59	86%	8 (12%)
II. Inflammable Liquids	30%	(1 to 96)	2°- 8 3°-35	81%	6 (14%)
III. Open Fires	25%	(1 to 85)	2°- 5 3°-34	87%	8 (20%)
IV. Scalding Liquids	13%	(1 to 50)	2°-16 3°-17	52%	0
V. Miscellaneous	14%	(1 to 60)	2°- 8 3°-20	71%	5 (17%)
VI. Unknown Cause	19%	(1 to 80)	2°- 2 3°-17	89%	2 (10%)
TOTAL	21%		2°-59 3°-172	74%	29 (12.5%)



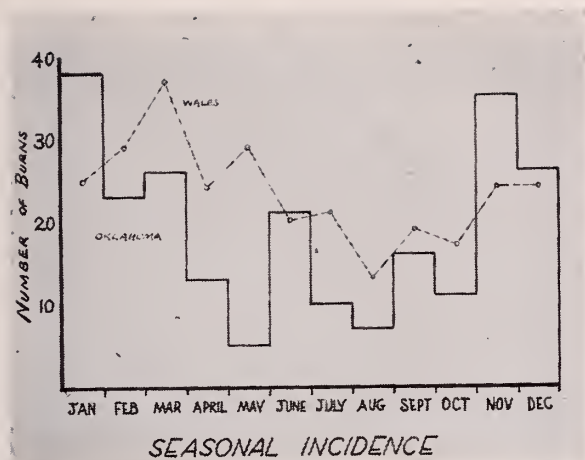


Figure 2

intestinal hemorrhage before death. Of the 29 deaths, 22 were in female patients.

### Geographic Distribution

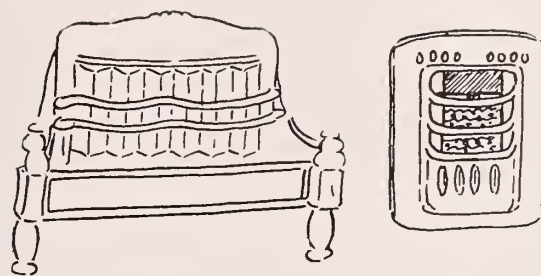
Figure 1 indicates the counties where the burns occurred. Only Oklahoma county furnished a large number (68), with all but five from Oklahoma City. None were from Tulsa. Grady and Garvin counties ranked second with 12 each.

Classification of the Oklahoma City patients was carried out to demonstrate possible rural and urban differences. The causal distribution was that of the total series except for a decrease in the combustible liquid and an increase in the scald groups. The outdoor and indoor domestic areas respectively involved would seem to provide a reasonable explanation for this shift.

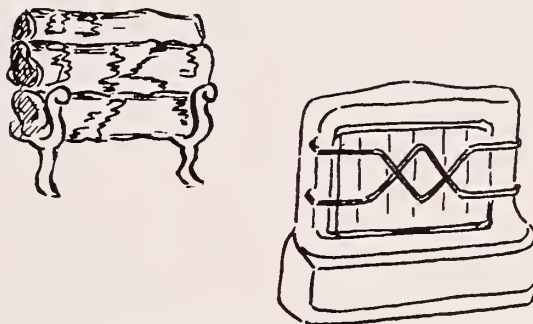
### Time Incidence

Figure 2 demonstrates a seasonal incidence with analysis by months. The clear-cut increase during the winter months is the usual finding, but Wilkinson in a large series<sup>6</sup> found occasional months with an unusually high level without evident cause. The 1955 Wales series<sup>7</sup> had a quite similar distribution, as represented by the broken line added to figure 2.

Analysis by day-of-the-week of the burn occurrence demonstrated no real predominance although Sunday and Monday seemed slightly less busy. The number of burns treated each year has been fairly uniform.



Pictured above (left) is fireplace gas heater and (right) gas bathroom heater, both of which are AGA approved.



Pictured above (left) gas logs and (right) heater both of which are current examples of inadequately guarded gas heaters.

Figure 3

### Sex Incidence

Although the total series is equally divided as to sex incidence, the grouping by cause and age demonstrates interesting variations (table 2). The equality is evident in the open fires, scalds, and unknown categories, but the more than two-to-one female predominance in the stove burns offsets the male majority in the inflammable liquid and miscellaneous categories. The latter group is composed of predominantly non-domestic, adult, and male situations.

The average ages listed in table 2 have little significance and even obscure the important distribution, but table 3 emphasizes the distressing incidence of serious burns in young children. Sixty-one per cent of the total series were under 12 years old, and 39% were pre-school. Here again the narrow female excess (50:39) in the pre-school group is about balanced by the (29:23) male shift in the six through 11 year group. Table 6 points out the deadly nature of the female patient's burns and age group analysis confirms this higher death rate even in the age ranges where male overall burn incidence is greater.



TABLE 6

## MORTALITY

## FATALITIES

Stoves	8
Inflammable Liquids	6
Open Fires	8
Scalding Liquids	0
Miscellaneous	5
Unknown Cause	2

TOTAL	29
-------	----

Average Age—26.2 yrs. (1 Wk. to 104 year range)

Average % burned area—54% (10-96% range)

Average Survival Time—17.1 days

Ignited Clothing—28 of 29

Sex: 22 female and 7 male

## Combustible Liquids

The victims of scalds and stove-induced burns seemed to lack protection but the distressingly high number of inflammable liquid victims suggests the need for education. The latter were predominantly male and avoided the age extremes. Adult misuse of gasoline and kerosene as other than primary fuel was appalling. These fires originated outside but near the home in many instances.

Several other items are of interest and probable significance:

Conflagrations (usually houses) were involved in only 15 cases. This approaches the lower national incidence recorded for England<sup>5</sup> possibly because of our relatively uncrowded residential areas.

Automobile crash accidents contributed in seven cases and several other injuries occurred while the victim was working on or near an automobile.

Seizures or "spells," usually in known epileptics, led directly to the heat contact in eight cases.

Mental retardation was noted as contributory in seven cases.

Neuropathy with sensory deficit (diabetes, spina bifida, etc.) occurred four times.

Contrary to popular conception, only once was alcoholism contributory and only twice were cigarettes blamed.

Deliberately inflicted injuries were specified twice.

In keeping with our national habit, coffee replaced the British tea as a major domestic scalding agent, with grease and especially wash water occurring several times.

Only one fireworks injury was noted and the human damage was indirect.

Misuse of matches (usually children playing) was involved in no less than 12 cases. Would safety matches help?

Only two electrical burns were encountered. One was industrial, the other a typically mutilating oral burn in an infant.

## Discussion

When the fundamentally destructive nature of thermal trauma and the significance of the skin as a major organ are acknowledged, it is evident that there can be no cure. Only prevention can reduce the suffering and death associated with severe burns. Our findings confirm that the vast majority of domestic burns are preventable and suggest a few practical approaches to the ideal of prevention.

Two factors have recurred with notable frequency in the etiologic data, especially on the more severe injuries. The major single mechanism in severe burn production was the ignition of clothing while the most common source of ignition was the open flame of a gas heating appliance.

The various "stoves" grouped in table 1 are especially common throughout the South and Southwest and share a popularity factor—their usefulness as room heaters. Appliances burning natural gas were by far the most common offenders. Geographic and socio-economic factors are evident: (a) a temperate, labile climate encourages the use of room heating elements with or without central heating; (b) natural gas as a fuel is locally abundant, available, relatively cheap, and well-adapted for use in the wall furnaces and movable non-vented heating elements; (c) the latter are common-place, especially in the older and poorer dwellings, where they may constitute the only heating system.

When the major causes of domestic burns have been investigated in other regions in the United States and Europe, the strong influence of the predominant local fuel is promptly evident *only if* the flame or hot element is *unguarded* or if a highly volatile combustible liquid is used. Thus we find the open wood fireplace in North Carolina,<sup>1</sup> the coal fire in England,<sup>4</sup> Wales,<sup>7</sup> and Scotland,<sup>8</sup> the ignition or explosion of spirit and petrol in Sweden,<sup>6</sup> and the same liquids plus open coal fires in Austria<sup>5</sup>—all accounting for a high percentage of the severe burns in their respective localities. This should be interpreted as incrimination of the appliance, rather than the fuel. Figure 3 depicts some common gas heating appliances widely used and still sold in this area. The almost complete absence of electric heaters from the Oklahoma City, Dallas, and Stockholm guilt list contrasts with their frequency (second only to open coal fires) in England and Wales, where many electric units are still without screen or mesh guards. What better evidence could we have that the simple and inexpensive measure of attaching proper guard screens to the open flame elements would materially reduce the needless pain, crippling, and slaughter from burns the world over?

The ignition of clothing almost achieves the status of a common denominator in the more serious burns, being involved in 66% of the total series and 78% when scalds are excluded. The relative inflammability of cotton and rayon fabrics is well known. Especially do the "raised," loose-knit varieties such as flannelette far exceed the wool, silk or nylon garments in ease of ignition and rapidity of flame propagation and intensity.

The reasons for the regional popularity of cotton clothing are similar to those mentioned for gas heaters: local abundance, general adaptability for local economic and climatic needs, and low cost. The great need for application of a safety factor in the use of both gas and cotton is obvious. *Improved heater guard design and flame-proofing of cotton fabrics appear to offer ultimately more therapeutic hope than any of the elaborate physiologic manipulations or investigations of the post-burn victim.* The design or style factor is also significant in the role

of clothing ignition as suggested by the increased incidence of severe and fatal burns in females. Time and time again the story was that of a young girl igniting her dress, bathrobe, or nightgown while warming herself before the stove.

Table 1 provides food for further thought. Protection is needed for the young, the old, and the infirm. Education, even more than protection, can help the rash or unwary. The role of the family physician in surveying the homes of his patients should be extended when vulnerable individuals are present. As citizens, we can all attack the obvious deficit in safety education, especially as regards the apparently unappreciated danger of misuse of highly combustible fluids.

A detailed review of burn and accident preventive measures is beyond the scope of our discussion. An extension of these efforts to collect data as to causative factors is indicated in other parts of the country. The public must be made aware of the problem and the medical profession should take the lead in that process. Progress in the development of a practical flame retardant for cotton clothing is encouraging and the catastrophic potential of atomic disaster has stimulated renewed research efforts by our armed services. Once the chief causes of accidents become widely known, appropriate preventive measures will be expedited. As Mr. Tempest of Cardiff, Wales has phrased it so well: "We pay lip service far too often to the axiom 'Prevention is better than cure'. Here is a problem which we know to be largely preventable. Those of us who are constantly seeing the results must take a far more active part in eradicating the causes, even though the remedy is not a new drug or an intricate surgical maneuver, but rather an exercise in social medicine in its widest sense."

### Summary

1. A series of 231 consecutive severely burned patients has been reviewed with special attention to etiologic factors in the domestic accidents.

2. The vulnerability and need for protection of the young, the old and the handicapped are confirmed.

3. The major single factor in the cause of severe burns was the ignition of clothing.

4. The commonest single source of ignition was the inadequately guarded open flame of gas heating appliances.

5. The findings confirm that the vast majority of domestic burns are preventable. Preventive measures suggested by the data are multiple but in general fall into four categories:

- a) Better design and guarding of heating appliances, enforced by public opinion and law.
- b) Safer clothing by fireproofing or substitution plus changes in design or style—with similar public support.
- c) Better design of hot liquid containers, kitchens, houses, etc.

d) Further education of the public concerning the need and methods for protection of certain individuals as well as the dangers of inflammable clothing, misuse of combustible liquids, etc.

#### BIBLIOGRAPHY

1. Bleck, E. E.: Causes of Burns in Children. *Jour. A.M.A.*, 158: 100-103, 1955.
2. Activity Report of Oklahoma Commission for Crippled Children—Fiscal Year Ending June 30, 1958.
3. Moyer, C. A.: An Assessment of the Therapy of Burns. *Ann. Surg.* 137: 628-639, 1953.
4. Colebrook, L., et al: The Prevention of Burning Accidents; *British Medical Journal* 1: 1379-87, 1956.
5. Colebrook, L.: The Prevention of Burning Accidents in England and America. *Bull. of N.Y. Acad. Med.* 27: 425-438, 1951.
6. Moyer, C. A.: The Sociologic Aspects of Trauma. *Am. J. Surg.* 87: 421, 1954.
7. Tempest, M. N.: A Survey of Domestic Burns and Scalds in Wales During 1955. *Brit. Med. J.* 1: 1387-92, 1956.
8. Wilkinson, A. W.: Burns and Scalds in Children. *Brit. Med. Jour.* 1: 37-40, 1944.

D. W. Foerster, M.D.  
800 N.E. 13th, Oklahoma City, Oklahoma

## OKLAHOMA COUNTY HEART ASSOCIATION

### Cardiovascular Meeting

Monday, November 30, 1959

Oklahoma Medical Research Foundation

Dinner 6:00 p.m.

(\$2.00)

Program 7:00 p.m.

"Some Recent Thought on the Relationship  
Between Serum Lipid and Atherosclerosis"

Robert H. Furman, M.D., Associate Director Research and Head of the  
Cardiovascular Section of the Oklahoma Medical Research Foundation

"Hemodynamic Factors in Atherosclerosis"

and

"Maintenance of Pulmonary Arterial Medial Hypertrophy in Newborn Pups"  
Gill Campbell, M.D., Professor of Surgery, Oklahoma University Medical Center

Robert H. Bayley, M.D., Program Chairman



Lingual Carcinoma presents a dual problem of early detection and prompt treatment. Cooperation between the radiologist and surgeon in advanced cases is advocated in the best interest of the patient.

## CANCER OF THE TONGUE\*

### An Analysis of 50 Cases

ALTHOUGH there is valid statistical evidence that the relative incidence of lingual cancer is decreasing, this neoplasm claimed more than 3,000 lives in the United States in 1958. Cancer of the tongue causes more deaths each year than any other neoplasm of the head and neck. In terms of prevalence this disease presents an important diagnostic and therapeutic problem.

This paper is an analysis of all the cases of lingual cancer treated at the University of Oklahoma Hospitals from 1946 through 1958. Fifty patients who were diagnosed, treated and subsequently followed at this institution are included. The primary purpose of this study was to compare our results, particularly in respect to radiation therapy, with those of larger, statistically significant studies in the literature.

Oral neoplasms occur more frequently in the male, and cancer of the tongue is no exception. Forty of our patients were men. It is well documented that the occurrence of lingual carcinoma is most commonly seen in the older age groups. The average age at the time of diagnosis was 69 years for women, 68 years for men. The oldest patient was 89; the youngest 44. More pa-

### CLARK A. GRIMM, M.D.

Clark A Grimm, M.D., a 1957 graduate from Washington University School of Medicine in St. Louis, is now a resident in radiology at the University of Oklahoma School of Medicine.

Doctor Grimm has been a Trainee of the National Cancer Institute since August, 1958.

This paper was presented at the meeting of the Oklahoma Association of House Staff Physicians on May 22, 1959.

tients were in their 70's than any other decade.

An awareness of an oral mass or ulcer was the most frequent presenting complaint, especially when the lesions involved the anterior two-thirds of the tongue (figure 1). Some degree of pain or burning was almost invariably present. Cancers of the posterior one-third and base of the tongue often presented with more ominous symptoms, such as otalgia, dysphagia, nodes in the neck and dysphonia. One patient had no complaint referable to the oral cavity; a small nodule was noted on routine physical examination in the outpatient clinic.

The hospital records of all patients were examined for factors which have been incriminated as probably predisposing to cancer of the tongue (figure 2). Excessive

\*From the Department of Radiology, University of Oklahoma Hospitals.

### SYMPTOMS WHEN FIRST SEEN

Painful Ulcer or Nodule	37
Mass in Neck	11
Dysphagia	9
No Oral Complaints	7
Bleeding	6
Pain in Jaw and/or Ear	4
Excessive Weight Loss	4
Painless Nodule	3
Asymptomatic	1

Fig. 1

### PREDISPOSING FACTORS

Nicotine (all forms)	18
Poor Oral Hygiene and/or	
Carious Teeth	13
Local Trauma	6
Leukoplakia	8
Syphilis	6
None Known	17

Fig. 2

use of tobacco, particularly snuff and chewing tobacco, and unusually poor oral hygiene were mentioned in over half the charts. Six patients were found to have positive serologies. Leukoplakia was described in eight cases. No known etiological factor was identified in a third of the patients. In figure 3 is seen the division of lesions between the mobile and non-mobile portions of the tongue. Of the 29 cancers on the anterior two-thirds, 21 involved a lateral border.

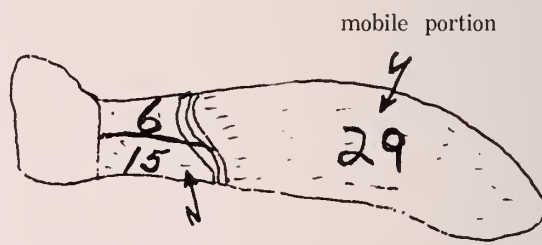
The incidence of lymph node involvement is illustrated in figure 4. Twenty per cent of lesions occurring on the anterior tongue and 85% involving the posterior tongue had obvious metastases before a diagnosis was made. Overall, it is seen that 64% had regional adenopathy when first seen. The distressing number of patients with clinically apparent metastases emphasizes the advanced stage of disease all too frequently seen. Survey of other studies reveals that an average of 40% of all patients with cancer of the tongue have regional adenopathy at the time of diagnosis.

The clinical staging of lingual cancer has always been a difficult and discouraging

task. This disease does not lend itself to stereotyped staging. It is not uncommon to see a patient with massive cervical adenopathy in whom an exhaustive search is necessary to locate a tiny primary at the base of the tongue. Conversely, lesions virtually replacing the tongue may be confined to that organ and thus be amenable to therapy. As a result of this clinical uncertainty, the literature abounds with complicated, often confusing, staging techniques.

For the sake of simplicity, the 50 patients in this study have been placed in three broad categories. Stage 1 lesions are less than 2 cm., situated on the anterior two-thirds and show no evidence of oral extension or distant metastases. Stage 2 lesions are larger than 2 cm., may be on the posterior dorsum of the tongue but do not involve the base. Limited local invasion and unilateral cervical adenopathy may be present. Stage 3 lesions have been subdivided into two groups. Stage 3a patients have far advanced local lesions with extension across the midline, or to the floor of the mouth, or to the tonsillar fossa. Multiple metastases are usually present. Stage 3b cancers involve the base of the tongue and such lesions are

### LOCATION OF LESION



base and post. 3rd

Figure 3

### PALPABLE NODES PRE-TREATMENT

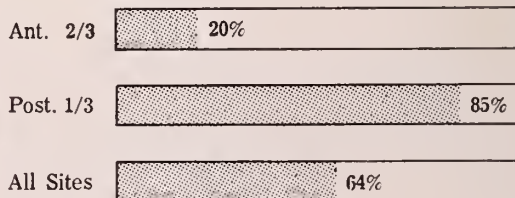


Fig. 4

### TREATMENT OF STAGE 1 CANCER

Total No.	11
No. Treated	11
Living and Well	7
Living With Cancer	1
Died Without Cancer	2
Died With Cancer	1
Cures	9 (82%)
Failures	2

Fig. 5

placed in this category regardless of degree of local or distant disease.

This system of classification has proved quite effective in staging the 50 patients in this series. From the prognostic standpoint, the critical factor is the presence or absence of cervical nodes. The grave prognosis of patients with stage 3 lesions is independent of the most optimum treatment.

The results of treatment have been determined according to the stage of the patient when first seen. Two of the 50 in this series received no definitive treatment; they are included because the diagnosis of cancer was made at this institution and the patients were subsequently followed throughout their terminal course.

A synopsis of the patients in stage 1 is seen in figure 5. Only 11 patients are in this group, all of which were treated. Eight are living, and seven of these have no evidence of cancer. Three have died, two without residual disease. The cure rate for stage 1 lesions then is 82% of this small group.

### TREATMENT OF STAGE 2 CANCER

Total No.	9
Not Treated	8
Living and Well	3
Living with Cancer	0
Died without Cancer	1
Died with Cancer	5
Cures	4 (44%)
Failures	5

Fig. 6

Nine patients with stage 2 lesions were seen, but one man refused treatment. His course was progressive and he died 14 months after diagnosis was made. Three of the nine patients are living and well. Of the six who have died, only one did not have residual or metastatic cancer (figure 6).

The majority of patients in this series fall into the stage 3 category. Fifteen were 3a and 15 were 3b. One patient was terminal and died before treatment could be begun. Twenty-five of 29 treated are dead. All had evidence of cancer at the time of death and most of them died as a direct result of their primary disease (figure 7). Of the four still living, one has far advanced local and metastatic disease. The three apparent cures represent a salvage rate of only 10% of the stage 3 patients.

### TREATMENT OF STAGE 3 CANCER

Total No.	30
No. Treated	29
Living and Well	3
Living with Cancer	1
Died without Cancer	0
Died with Cancer	25
Cures	3 (10%)
Failures	26

Fig. 7

The overall cure rate at this time, then, is 16 of 50, or 32%, which compares favorably with results of other, much larger series. A survey of the literature reveals that a salvage rate of 25% is all that can be expected if all patients, irrespective of stage are considered. When only lesions of the anterior tongue are included, the results are more encouraging. Twenty-nine patients in this series presented with cancer of the mobile tongue. There are 13 apparent cures, a 40% salvage rate if all survive five years. The results of a few representative studies are reproduced in figure 8.

Of the 16 patients in this series who are tentatively classified as cures, 14 are living and well and two have died without evidence of cancer. The two deaths survived eight and 45 months respectively. The remaining 14 have survived an average of 45



months, with extremes of eight and 85 months. It cannot be assumed that all of the survivors will remain free of disease. Of significance, however, is the fact that 12 of the 14 are now more than 28 months post-treatment.

As would be expected, the chief therapeutic approach in these patients was radiation therapy. Of the 48 actually treated, irradiation in some form was the primary treatment in 34. Eleven were operated on and three received a combination of surgery and irradiation. Radiation therapy included external x-ray, radium needle implantation, and, in a few instances, radon seeds. Of those treated surgically, hemiglossectomy plus some form radical jaw neck procedure was performed on nine. Eight of the 11 treated surgically were in stages 1 and 2.

5 YEAR SURVIVAL—ANT. 2/3			
Series	No.	Survival	
Radium Inst.			
(Paris)	494	276 (56%)	
Windeyer			
(London)	144	40 (28%)	
Memorial Hosp.			
(New York)	556	124 (22%)	
Radiumhemmet			
(Sweden)	235	70 (30%)	
Toronto Univ.	342	115 (33%)	

Fig. 8

A summary of stage 1 lesions is seen in figure 9. Patients considered as cures have either died of unrelated disease without cancer or have survived at least eight months post-treatment without recurrence of metastasis. In this group with limited disease, irradiation and surgery were equally effective. The last column in figure 9 indicates the average number of months which the apparent cures have survived. The one patient in whom irradiation failed developed cervical metastases 18 months after treatment.

Of the nine stage 2 lesions, only four have shown no evidence of persistent disease (figure 10). The three irradiation survivors are 42, 58 and 51 months post-therapy. The apparent surgical cure died in congestive

RESULTS IN STAGE 1 CANCER				
Therapy	No.	Cures	Fail-ures	Surv. (mos)
Irrad.	5	4	1	49
Surgery	5	4	1	52
Comb.	1	1	0	28

Fig. 9

heart failure eight months after a radical procedure in which no neoplasm was found in the operative specimen. It is assumed that biopsy in this case was curative. There is only one surviving stage 3a patient, a 55 year old man who is well 27 months after operation (figure 11). The 12 patients treated with irradiation survived an average of nine months.

The 15 patients with base of tongue lesions are depicted in figure 12. The man treated with irradiation to the primary lesion followed by a neck dissection is living and well after 58 months. The surviving irradiation patient is 12 months post-therapy.

An important consideration in the evaluation of the effectiveness of cancer therapy in an advanced age group is the degree of control of the primary lesion. The purpose of irradiation in virtually all of the patients with stage 3 cancer was palliation. It must be emphasized that many of these patients had exceeded their life expectancy when the diagnosis of lingual cancer was made. The inevitable, expected attrition rate in patients of this age reduces the significance of absolute five year survivals and magnifies the importance of reasonable palliation. A careful study of each chart was made to determine the ultimate effectiveness of radiation therapy. Of 24 stage 3 patients, 17 had good palliation, measured by control of the pri-

RESULTS IN STAGE 2 CANCER				
Therapy	No.	Cures	Fail-ures	Surv. (mos)
Irrad.	5	3	2	50
Surgery	3	1	2	8

Fig. 10

### RESULTS IN STAGE 3a CANCER

Therapy	No.	Cures	Fail-ures	Surv. (mos)
Irrad.	11	0	11	—
Surgery	3	1	2	27
Comb.	1	0	1	—

Fig. 11

mary lesion, regression of regional disease, at least temporary relief of presenting complaints and apparent prolongation of life. When stage 1 and stage 2 lesions are included, a total of 80% of the patients treated by irradiation are either living and well or have died without evidence of residual cancer in the tongue.

It is the contention of this paper that cancer of the tongue is best treated by radiation therapy. If cancer is restricted to the confines of the tongue, radical surgical treatment will be curative, but the resulting cosmetic defect and functional disability are undesirable; furthermore, equally good results with irradiation make the unavoidable hazards of surgery unnecessary. If cervical

### RESULTS IN STAGE 3b CANCER

Therapy	No.	Cures	Fail-ures	Surv. (mos)
Irrad.	13	1	12	18
Comb.	1	1	0	58

Fig. 12

metastases are clinically present, the treatment of choice appears to be a neck dissection after the primary lesion has been effectively controlled by radiation therapy.

### REFERENCES

- Berven, E.: End Results of Treatment of Cancer of the Tongue, *American Journal of Roentgenology* 63: 712-715, 1950.
- Cade, S.: Treatment of Cancer of the Tongue, *American Journal of Roentgenology* 63: 716-718, 1950.
- DuVal, M. K., jr., and Healy, M. J.: The Natural History and Effects of Treatment of Cancer of the Tongue, *Cancer* 9: 842-847, 1956.
- Lenz, Maurice, and Sproul, E.: Carcinoma of the Tongue, With Generalized Metastases, *American Journal of Surgery* 25: 102-106, 1934.
- Marin, C. L., and Martin, J. A.: Carcinoma of the Posterior Tongue Treated With Radiation, *Radiology* 66: 835-841, 1956.
- Martin, H.: The Case for Prophylactic Neck Dissection, *Cancer* 4: 92-97, 1951.
- Wookey, H., Ash, C., Welsh, W. K., and Mustard, R. A.: The Treatment of Oral Cancer by a Combination of Radiotherapy and Surgery, *Annals of Surgery* 134: 529-540, 1951.
- Ackerman, L. V., and del Regato, J.: *Cancer—Diagnosis, Treatment and Prognosis*, Second Edition: 254-276; 371-379, 1954.
- 800 N.E. 13th, Oklahoma City, Oklahoma

ALLIANCE, *n.* In international politics, the union of two thieves who have their hands so deeply inserted in each other's pocket that they cannot separately plunder a third.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

This provocative paper written in the form of a clinicopathologic conference, furnishes us with needed information on a notoriously blind diagnostic spot.

## Clinicopathologic Conference\*

# Abdominal Cramps, Vomiting, Shock and Unexpected Death

### Clinical Summary

*History.* A 58-year-old man was admitted to the hospital with chief complaints of persistent abdominal cramps, nausea, and loss of weight during the preceding three weeks.

The patient had hemorrhoids removed seven years prior to this admission, but otherwise he was in good health until three weeks prior to admission. At that time he suddenly developed generalized, cramping, abdominal pain, associated with vomiting and numerous loose stools. He received medicine from his physician the following day, and the pain, vomiting, and diarrhea ceased. However, a week later he experienced colicky abdominal pain, was nauseated, and occasionally vomited. The patient remained anorectic, and he lost 16 pounds during the three weeks between the onset of illness and admission to the hospital.

*Department of Pathology, Hillcrest Medical Center, Tulsa, Oklahoma; Department of Medicine, Wayne University, Detroit, Michigan; and Department of Medicine, Presbyterian Hospital, New York, New York.*

LEO LOWBEER, M.D.

MUIR CLAPPER, M.D.

PAUL WERMER, M.D.

Leo Lowbeer, M.D., graduated from the University of Vienna Medical School in 1927. He is certified by the American Board of Pathology and is now Chief Pathologist, at the Hillcrest Medical Center, Tulsa, Oklahoma and Visiting Lecturer, Department of Pathology, at the University of Oklahoma School of Medicine.

Doctor Lowbeer is a member of the American Association of Pathologists and Bacteriologists, the American Society of Clinical Pathologists, the College of American Pathologists, and the International Academy of Pathology.

*Physical examination.* The patient was emaciated and dehydrated, and he seemed to be chronically ill. His blood pressure was 124/72, pulse rate 80 and respirations 18 per minute, and the temperature 99.4 F. Examination of the head and chest revealed no abnormal findings. The abdomen was scaphoid and rigid, but was not tender, and the abdominal organs were not palpable. Neurologic examination also revealed no abnormalities.

*Laboratory findings.* Urinalysis revealed a specific gravity of 1.020 and a trace of

\*Reprinted through the courtesy of the editors of THE AMERICAN JOURNAL OF CLINICAL PATHOLOGY, Vol. 26, No. 6, June 1956.



albumin. There were 3,460,000 erythrocytes per cu. mm. and 11.1 Gm. of hemoglobin per 100 ml. of blood. The white cell count was 3,500 per cu. mm., with band forms 7 per cent, segmented neutrophils 41 per cent, eosinophiles 3 per cent, lymphocytes 39 per cent, and monocytes 10 per cent. The Kline test was negative. Gastric analysis revealed no free hydrochloric acid after alcohol, and there were 22 degrees of total acidity after 45 minutes. Tests for occult blood were positive on gastric contents, but negative on stools. Roentgenographic examinations of the gastrointestinal tract and gallbladder were normal.

*Course in the hospital.* Following medication the patient was no longer nauseated, but he complained of severe, persistent headaches. Occasional enemas and laxatives were required to relieve constipation. Two weeks after admission there were several one-day episodes of severe vomiting, but his appetite was fair. There were occasional elevations of temperature to 99.4 F., but it was generally sub-normal, as low as 97 F. During the administration of vitamin B<sub>12</sub> and extract of liver, the red cell count rose to 4,190,000 per cu. mm., the hemoglobin to 12.5 Gm. per 100 ml., and the white cell count to 6,400 per cu. mm. Owing to increasing complaints of pain in the lower back, roentgenograms of the lumbar spine were made, and these revealed generalized demineralization of bone and changes of arthritis. Cortisone and estrogen were administered, and the patient was dismissed in improved condition after three weeks of hospitalization. His appetite was fair but he had not gained weight. At this time the clinical diagnoses were: acute gastroenteritis, healed; pernicious anemia in therapeutic remission; lumbar spondylarthrosis.

*Second admission to the hospital.* The patient was brought back to the hospital three days later in a semicomatose condition. His wife stated that he had started to vomit severely the day before, and complained of "burning" substernal and epigastric pain that persisted for a day. He passed a tarry stool, and later became irrational. When the patient was brought to the hospital, he

was restless, emaciated and semicomatose, and he reacted only to painful stimuli. The blood pressure was not obtainable, the pulse rate was 96 per minute, and his respirations were irregular and slow. The pupils responded poorly to light, but corneal reflexes were not impaired. Auscultation revealed heart sounds that were distant, and no murmurs were heard. The abdomen was scaphoid, fairly rigid, and not tender to palpation.

The red cell count was 5,850,000 per cu. mm., and the hemoglobin 16.7 Gm. per 100 ml. The white cell count was 14,050 with band forms 24 per cent, segmented neutrophils 52 per cent, and lymphocytes 24 per cent. The patient did not pass any urine, and the urea nitrogen in the blood was 59.5 mg. per 100 ml. An electrocardiogram revealed a sinus tachycardia with a rate of approximately 140 per minute. Nonspecific ST segments and changes in the T waves were regarded as suggestive of diffuse ischemia of the myocardium. The patient was treated for shock, but he responded poorly, and remained anuric and comatose. His temperature rose terminally to 103.8 F., and he expired 13 hours after the second admission, less than two days after the onset of the second acute episode, or approximately six weeks after the onset of his illness.

### Discussion and Clinical Diagnosis

*Doctor Muir Clapper.* The diagnosis suggested by observations during the first admission are: (1) a gastrointestinal disorder with insufficient evidence for localization; (2) possible pernicious anemia. The latter diagnosis would be more certain if it were supported by the findings of a megaloblastic bone marrow and histamine-refractory achlorhydria rather than alcohol-achlorhydria. Leukopenia and the apparent response to vitamin B<sub>12</sub> and liver extract are consistent with the diagnosis of Addisonian anemia, which could contribute to the gastrointestinal symptoms. The pain in the lumbar region of the back is not adequately explained.

The second admission is obviously more dramatic. "Burning" epigastric and retro-

sternal pain (the length of the sternum), a tarry stool, shock, and death must be explained. A tarry stool indicates bleeding from the upper part of the gastrointestinal tract and, if there is sufficient bleeding, this could certainly explain shock. Although the distribution of the pain and the state of shock are consistent with myocardial infarction, the character of the pain and the electrocardiogram (assuming that it does not reveal incomplete block of the left bundle-branch) are strong evidence against such a diagnosis. Dissecting aneurysm must be considered, inasmuch as gastrointestinal hemorrhage has been reported in that condition. However, the lack of previous hypertension does not support that diagnosis, and there is no mention of absent peripheral pulses, a blowing diastolic aortic murmur, or a precordial rub. Therefore, it seems advisable to eliminate that possibility.

The "burning" epigastric and retrosternal pain is suggestive of involvement of the esophagus, but it could also be the result of an acute mediastinitis. I am inclined to think that the patient had a lesion in the cardiac portion of the stomach, with extension into the lower end of the esophagus, or a lesion in the lower end of the esophagus. Hemorrhage from such a lesion might cause a tarry stool, and perforation into the mediastinum could produce acute mediastinitis, with shock developing primarily on that basis. The relatively high red cell count and value for hemoglobin, and the paucity of evidence of external bleeding, would lead one to think that the state of shock was not caused by loss of blood.

A carcinoma of the cardia of the stomach, complicating pernicious anemia, could have been missed in the roentgenographic examination of the gastrointestinal tract, and such a lesion may perforate into the lower mediastinum. Metastatic carcinoma in the lumbar spine would explain the backache, and it is not unexpected that x-ray films would be negative early in the course of metastases to bone. An esophagitis developing from regurgitation of gastric secretions may also have perforated and bled, and I have seen nontraumatic perforation of a previously

normal esophagus. Subcutaneous emphysema in the tissues of the neck is not mentioned, but the examiner may not have looked for it, and it is not an invariable accompaniment of perforation of the esophagus. If it were present, it could be detected in x-ray films, but apparently it was thought not advisable to move the patient for such an examination.

The negative findings in the examination of the abdomen virtually exclude the possibility of perforation into the peritoneal cavity. From the description of the electrocardiogram, I assume that the ST segments were depressed, and the sub-endocardial ischemia may have resulted from shock. If the ST segments were elevated and the T waves inverted, the changes could have been caused by pericarditis that was secondary to mediastinitis, or by the rupture of a dissecting aneurysm into the pericardial sac. It is unlikely that a peptic ulcer of the esophagus would occur when there is achlorhydria. Finally, I would also consider the possibility of pancreatitis, with extension of the necrotic process to involve the mediastinum.

In conclusion, I believe that the cause of this patient's illness and death was the rupture of the esophagus into the mediastinum, resulting in acute mediastinitis. I am inclined to think that carcinoma of the cardia of the stomach, with extension into the lower esophagus, was the most likely cause for this perforation, but rupture of the esophagus as a result of esophagitis or primary carcinoma must also be considered. Pernicious anemia may have been associated with the patient's illness, but this disease probably was not part of the terminal symptoms or his death. If this man did not have pernicious anemia, the acute mediastinitis could have been the result of perforation of a peptic ulcer of the esophagus caused by administration of cortisone.

*Doctor Paul Wermer.* I would regard the first seven weeks of this patient's illness as an acute gastroenterocolitis of unknown origin. Regional enteritis would ordinarily be



a plausible explanation for the diarrhea not accompanied by fever, but the ileum seemed to be normal according to the radiologic examination. A tumor of the small intestine could have produced vomiting and diarrhea, but such a lesion probably would have resulted in a positive test for occult blood in the stool. There are no data from tests to determine the sedimentation rate, the level of alkaline phosphatase, cephalin flocculation, or the amounts of serum proteins, and such information would make it possible to distinguish more easily between a banal gastroenteritis and a systemic disease with manifestations in the gastrointestinal tract. It seems to me that the diagnosis of pernicious anemia is not strongly supported, inasmuch as a mild normochromic anemia and achlorhydria were the only positive findings. In addition, the presence of 10 per cent of monocytes in the peripheral blood would be most unusual in pernicious anemia. I suspect that whatever caused the gastrointestinal symptoms also caused the anemia, but I cannot suggest a more likely diagnosis than acute gastroenteritis.

The terminal episode seems to represent the classic signs and symptoms of rupture of the lower portion of the esophagus, probably on the left side, and probably the result of vomiting. The patient had no angina on effort, and it would be unusual to have thrombotic occlusion of a coronary artery and an infarct of the myocardium as the first manifestation of coronary arteriosclerosis. The marked shift to the left in the leukocytes may indicate a "surgical disease," and the electrocardiographic changes are consistent with what would be expected in shock. Unfortunately, it is not uncommon that "spontaneous" rupture of the esophagus is mistaken for a myocardial infarct. In making a diagnosis of this patient's illness, I believe it is helpful to direct considerable attention to his medical history, which is characteristic of that usually associated with rupture of the esophagus. I have not observed tarry stools from persons with a ruptured esophagus, but this feature does not raise serious question inasmuch as the test for occult blood in the feces was negative.

## Pathologic Findings

*Doctor Leo Lowbeer.* Postmortem examination (nine hours after death) revealed an emaciated body with no icterus, cutaneous rash, or subcutaneous edema. The weight of the brain was increased to 1550 Gm. owing to cerebral edema. The leptomeninges and brain were congested, and there was moderate dilatation of the lateral ventricles. Except for small patches of arteriosclerosis in the coronary arteries, no abnormalities were observed in the heart, the lungs and pulmonary vessels, or in the upper part of the respiratory tract. Similarly, no pathologic changes were found in the esophagus or adjacent mediastinal tissues. The lumen of the stomach contained a small amount of cloudy, green, odorless fluid, and the mucosa was moderately hyperemic, but no erosions or ulcers were observed. There was advanced hyperemia of the mucosa in the duodenum, the upper part of the jejunum, and throughout the ileum and colon. In addition, petechiae were present in the mucosa of the duodenum and upper part of the jejunum. The lumen of the colon contained fluid and semi-fluid, yellow, fecal material, but there was no evidence of blood. The fecal material in the rectum was soft and formed. No ulcers were found in the small or large intestine, the lumen was not dilated, and there was no evidence of inflammation on the serosal surface. The liver was slightly enlarged (1700 Gm.), and the spleen was small (110 Gm.) and firm. No significant anatomic changes were found in the pancreas, kidneys, adrenal glands and other abdominal organs. Examination of several bones revealed marrow that seemed to be normal, and the marrow in the femur was fatty.

Owing to (1) the absence of lesions that would be of help in explaining the death of this patient, and (2) the advanced congestion of the gastrointestinal tract, together with the history of two episodes of acute gastroenteritis followed by vascular collapse, it seemed highly important to perform bacteriologic and toxicologic studies. Consequently, gastric and intestinal contents and portions of several organs were



sent to the State Health Department for toxicologic analyses, particularly for the content of arsenic. Cultures of fecal material from the colon yielded growth of *Proteus morganii*, *Klebsiella pneumoniae*, *Streptococcus zymogenes* (beta hemolytic enterococcus), and *Escherichia coli*.

Histologic examinations revealed advanced congestion of submucosal veins in the intestines (Figs. 1 and 2), associated with edema of the mucosa and a moderate increase in mononuclear inflammatory cells. Fatty metamorphosis was observed in the liver, and hepatic cells around central veins were necrotic. In addition, the changes of brown atrophy were noted. There was advanced fatty degeneration of the renal tubular epithelium and in the myocardium, which also contained small accumulations of lymphocytes and small foci of fibrosis, although no sclerotic changes were noted in the branches of the coronary arteries. The cortical cells of the adrenal glands were depleted of lipid. No further changes were noted histologically except for congestion of the cerebral, leptomeningeal, and renal blood vessels.

The toxicologic examination provided the solution to this riddle in pathologic diagnosis. Significant amounts of arsenic were found in the liver, the contents of the stomach, the wall of the stomach, and in the brain. The liver contained 2.8 mg. of arsenic (as arsenic trioxide) per pound; the total content of arsenic in the liver was estimated as 10.64 mg., or six times the maximal normal amount of arsenic that may be expected in the liver (0.1 mg. per 100 Gm., or 1.7 mg. for a liver of this size). The wall of the stomach contained 0.3 mg. of arsenic, the contents of the stomach 0.5 mg., and the brain 0.08 mg. of arsenic per pound (total content in the brain estimated as 0.28 mg.). These values are significant inasmuch as arsenic is not normally present in the brain, or the stomach and its contents. The gross and microscopic findings of advanced mucosal and submucosal congestion (without corrosion) are characteristic of arsenical gastroenteritis, and the toxic necrosis of central portions of hepatic lobules is con-

sistent with the lesions observed in subacute poisoning with arsenic. Based on the anatomic and toxicologic findings, a final diagnosis of acute and subacute poisoning with arsenic was made. The pathologic findings were submitted to the County Attorney in order that he might conduct an investigation. After prolonged questioning, the patient's wife (incidentally, she had signed the autopsy permit) confessed to having poisoned her husband with arsenical rat poison. Two doses were given (the first in prunes and the second in coffee), and each was followed promptly by gastroenteritis as described in the history. The woman also confessed that she had poisoned three former husbands with arsenic. The bodies were buried in three different states, but they were exhumed, and significant amounts of arsenic were detected in all three, several years after death.

#### General Discussion and Clinicopathologic Correlation

A discussion of several points related to poisoning with arsenic seems to be in order.<sup>1-5</sup> Arsenic is poisonous in gaseous form and in certain inorganic and organic compounds, but not in metallic form. Inasmuch as this patient ingested arsenic as an inorganic compound, only that type is considered here.

The principal inorganic arsenical compound in rat poisons, fly papers, and garden sprays is arsenic trioxide. It is a heavy, white powder that has no distinctive odor or flavor, and it is easily obtainable in stores. Consequently, this poison is comparatively common in homicidal and accidental cases of poisoning.

The toxic action of arsenic is two-fold: (1) it produces paralysis of capillaries particularly the splanchnic capillaries, and (2) it poisons protoplasm (affecting the liver, brain and other organs) by combining with and inactivating respiratory enzymes that contain sulfhydryl groups, thereby preventing respiration in the tissues. The minimal fatal dose is usually regarded as two to three grains (0.15 to 0.2 Gm.), but tolerance can be built up gradually by those who use

it habitually as a stimulant (Styria's arsenic eaters). The poisonous effect of arsenical compounds depends on the dose, the speed and quantity of absorption, and the speed and quantity of elimination (through vomiting, diarrhea or lavage). Four principal types of poisoning with arsenic are recognized, *i.e.*, the acute paralytic, the acute gastrointestinal, the subacute, and the chronic types.

The *acute paralytic* form usually occurs after rapidly absorbed, large doses that cause profound circulatory collapse, stupor, and convulsions; death frequently occurs within 24 hours, probably the result of the overwhelming effect on the medullary nervous centers; vomiting and diarrhea may or many not be present. The postmortem anatomic findings may be negative, or there may be moderate hyperemia of the gastric mucosa, with or without slight corrosion. The diagnosis can be proved by toxicologic examination of the viscera and the contents of the stomach. The discrepancy between the negative or scant anatomic findings and the clinical state of profound shock is significant. This patient seems to be an example of the acute paralytic poisoning with arsenic, with death resulting from the second and fatal dose of administered arsenic.

The *acute gastrointestinal* type is the form of arsenical poisoning observed most commonly. The prominent symptoms are epigastric "burning" and vomiting, followed in one to two hours by rice-water-like diarrhea. Occasionally, there is a garlic-like odor to the breath. Oliguria and shock are sometimes observed, but death may not occur for hours, days, or weeks after ingestion, or the patient may survive if elimination is complete. Arsenic may be stored for several weeks in the liver, kidneys, and spleen, and slow release with reabsorption into the intestinal tract sometimes causes persistent symptoms. Postmortem examination of persons who die soon reveals scant changes, sometimes consisting only of hyperemia of the gastrointestinal mucosa, and corrosion is absent or only slight. On the other hand, in patients who died after days or weeks there usually is: (1) advanced congestion

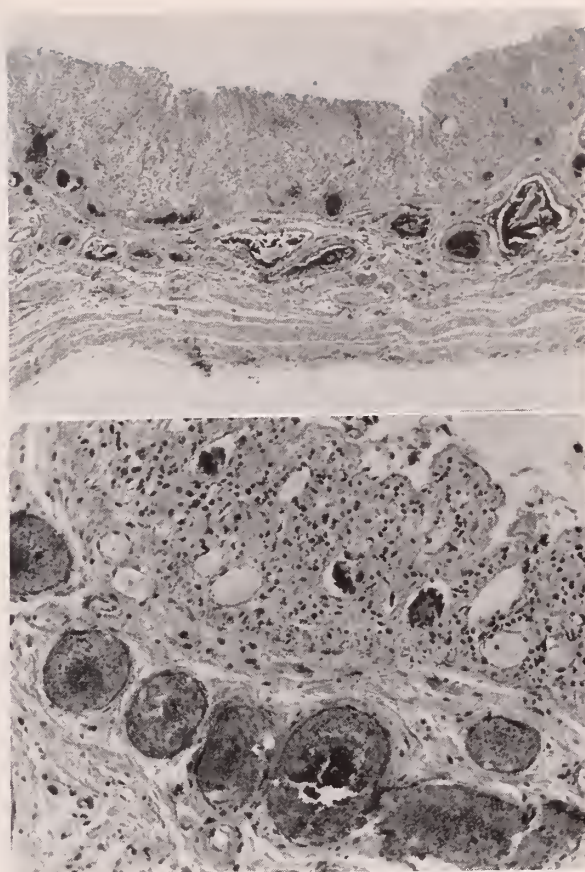


Fig. 1 (upper). Wall of the stomach with advanced hyperemia of blood vessels in the mucosa and submucosa. Hematoxylin and eosin. X20.

Fig. 2 (lower). Wall of the jejunum with intensive hyperemia of blood vessels in the mucosa and submucosa. Hematoxylin and eosin. X120.

of the gastrointestinal mucosa with submucosal hemorrhages; (2) degenerative changes in the heart, the kidneys, and the liver, with or without necrosis of hepatic cells; and (3) scattered petechiae. These changes probably result from reabsorption of arsenic, rather than from direct contact.

The *subacute and chronic* types of poisoning with arsenic are caused by successive, small doses or by a single large dose with relatively adequate elimination. This form of arsenical poisoning may persist for weeks or months, and the patient may have one or more of the following manifestations of illness: (1) chronic gastroenteritis; (2) subacute necrosis of the liver with icterus; (3) chronic neuritis with paralysis, anesthetics, trophic changes, and amblyopia; (4) cutan-



eous eruptions and keratoses; (5) nephrosis; (6) anemia, loss of weight, and weakness.

Arsenic is stored in the skin, hair, and bones, and it is possible to identify it by analysis of tissues even years after death. Arsenic inhibits postmortem putrefactive changes in the body, and, for that reason, it has been used in certain embalming fluids. The law in several states prohibits this, however, inasmuch as use of arsenic-containing embalming fluids invalidates postmortem chemical analysis for arsenic in instances where arsenical poisoning is suspected. Unusually good preservation of viscera sometimes may be a clue that suggests the possibility of arsenical poisoning.

It seems likely that the initial symptoms of the patient, *i.e.*, abdominal cramps, nausea, vomiting, and diarrhea, were caused by the first dose of arsenic, administered in prunes. The patient did not die at that time, probably owing to elimination of most of the arsenic administered—or the dose may not have been sufficiently large. Persistent symptoms (such as severe headache, anorexia, loss of weight, nausea, occasional vomiting, and anemia) indicate that arsenic may have been stored in various organs, after which it was gradually released and eliminated. The central necrosis in the liver supports this postulation. Nevertheless, the patient was in rather good condition when dismissed from the hospital six weeks after the administration of the first dose. Then the patient's wife administered a second, presumably larger dose of arsenic in coffee, and this was followed by the second episode, consisting of vomiting, epigastric "burning

pain," diarrhea, vascular collapse, coma, and death.

The possibility of arsenical poisoning should be considered in cases of acute or subacute gastroenteritis, particularly when there is evidence of prolonged general toxicity or an unusual degree of circulatory collapse. It seems certain that many cases of poisoning with arsenic are not detected. In New York City 272 cases of arsenical poisoning occurred in 33 years, and, of those in which arsenic was identified, the great majority was accidental or suicidal. Only 13 (five per cent of the total) were classified as homicidal cases. The actual number of homicidal poisonings with arsenic is probably higher.

Several astute internists were consulted with regard to this patient, but none of them suspected arsenic or any other poison, nor was such a diagnosis suggested by the attending physicians. Therefore, this case of fatal poisoning with arsenic is presented as a clinicopathologic conference in order to draw attention to the characteristic features of an entity that probably occurs more frequently than it is recognized.

#### REFERENCES

1. Freireich, A. W.: Recent advances in the treatment of Poisoning. In *Legal Medicine*, by R. B. H. Gradwohl. St. Louis: C. V. Mosby Co., 1954, pp. 311-313.
2. Gonzales, T. A., Vance, M., Helporn, M., and Umberger, C. J.: *Legal Medicine*. Ed. 2. New York: Appleton-Century Crofts, Inc., 1954, pp. 737-743.
3. Oettingen, W. F. von: *Poisoning*. New York: Paul B. Hoeber, 1954, pp. 260-263.
4. Petri, E.: Pathologische Anatomie und Histologie der Vergiftungen. In *Handbuch der speziellen pathologischen Anatomie und Histologie*, ed. by F. Henke and O. Lubarsch. Berlin: Julius Springer, 1930, 10: pp. 159-175.
5. Simpson, K.: *Forensic Medicine*. Ed. 2. Baltimore: The Williams & Wilkins Co., 1952, pp. 266-271.

Hillcrest Medical Center, Tulsa, Oklahoma





## **Message from the Dean**

### **University Medical Center Management**

The duties of the director or dean of a university medical center are threefold. First, as a delegate of the President of the University, he must be ever cognizant of the President's authority regarding all matters, and he must uphold the university standards and regulations at all times. Second, as the ultimate executive for the entire Faculty, he must represent that faculty's opinions to the university authorities and to professional groups as well. Third, as administrator of a coalition of professional schools, hospitals, clinics, research enterprises, and graduate programs, he must be able to delegate authority to an administrative staff in order to successfully carry on this intricate operation.

Persons collectively involved in the administration of the center are a superintendent of hospitals, a dean or director for each academic area, associates for important special aspects of training and research, a skilled business administrator, and, in addition, heads of services such as personnel, public relations, official records, and physical plant functions. The task of the director is to coordinate the work of this staff efficiently, to weigh problems that arise in connection with the Faculty, students, employees, health agencies, dozens of accrediting groups, the practicing profession, and university and government representatives, with fairness and integrity, and to work tirelessly and devotedly for excellence in medical education. He must scrutinize his contemplated decisions and actions as to whether these judgments favor a spirit of understanding and fellowship, and a desire for progress in the medical center as a whole, and he must never act solely on his own impressions.

On the contrary, he must seek the help of those who are in a position to know more than he does about a given problem, and lend authority to those delegated with responsibility. In seeking from groups or committees advice which requires their time and endeavor beyond routine duty, he should effect the recommendations impartially, or be ready to give a realistic and logical explanation as to why he finds them lacking in some essential quality.

If worthwhile accomplishments are to be effected by the director of a university medical center, he will find it his intrinsic duty to be honest even when misunderstood, to remain unprejudiced by emotion or temperament which may distort perspective, to encourage a free and progressive academic atmosphere and good objectives where they are yet to be attained. There is also the matter of a faith, untarnished by daily irritations, in an ever better future for medicine and for medical services.

*Mark R. Everett*

Be careful with that "lump"—it may be more than meets the eye and it matters how you treat it.

# MALIGNANT SOFT TISSUE TUMORS

## A Ten Year Study from 1949 to 1959 at the University of Oklahoma Medical Center

**M**ALIGNANT TUMORS of the soft tissues are among the most intriguing and perplexing neoplasms that confront the surgeon. Many excellent reviews<sup>1, 2, 3, 4, 5</sup> have been published on soft tissue neoplasms, and opinions differ widely on the treatment of these lesions. This paper is devoted to a review of patients with angiosarcomas, rhabdomyosarcomas, liposarcomas and fibrosarcomas who have been encountered at the University of Oklahoma Medical Center during the ten year period from 1949 to 1959. It is hoped that scrutiny of the medical course of this series of patients may lead to a better understanding and awareness of the problems involved. Only those patients with a definite pathological diagnosis are included. For the purpose of this study, the terms "local excision," "wide excision," and "radical excision" are used throughout and are defined as follows. Local excision means removal of the tumor just outside the palpable limits of the lesion; wide excision is the removal of the tumor extending at least

### WILLIAM JAY WASKOWITZ, M.D.

William Jay Waskowitz, M.D., graduated from Yale University School of Medicine in 1957. After a year's residency in general surgery, Doctor Waskowitz is now a second year resident in Orthopedic Surgery at the University of Oklahoma Medical Center.

an inch beyond all palpable and visual limits of the lesion; radical excision is removal of the tumor at or above the joint proximal to the lesion if the tumor was in an extremity, or wide excision and dissection down to and including underlying fascia and muscle. It is imperative to have an adequate biopsy of the lesion prior to definitive therapy. The frozen section has its limitations. It is better to have a permanent microscopic section. However, it should be stressed that definitive therapy should be instituted as swiftly as possible.

### Angiosarcoma

Two patients with a diagnosis of angiosarcoma have been admitted to this Hospital in the past ten years. One patient had the angiosarcoma present at birth on the left

*From the Department of Surgery, The University of Oklahoma Medical Center, Oklahoma City, Oklahoma.*

TABLE 1

## TOTAL TREATMENT AND SURVIVAL

Primary treatment—Average survival after primary therapy (months)

	None	Local Excision	Wide Excision	Radical Excision	X-Ray Alone
ANGIO.					
No. Patients	—	—	2	—	—
No. Expired			1		
Av. Survival			3.5		
RHABDO.					
No. Patients	—	—	3	1	—
No. Expired			2	1	
Av. Survival			11.3	3	
LIPO.					
No. Patients	—	9	7	3	1
No. Expired		2	4	1	0
Av. Survival		24.6	19.3	29	12
FIBRO.					
No. Patients	2	11	4	4	4
No. Expired	2	4	1	1	4
Av. Survival	4	49	59	67	8.5

lateral thigh, underwent operation at the age of two weeks, and did not survive the operative procedure. At autopsy there were metastases in the liver and lungs. The other patient was a 14-year-old male who first noted a mass on the left thigh six months prior to operation. Wide excision followed by x-ray treatment was employed. Four months postoperatively, metastases to the sacrum were noted. Seven months post-surgery, he is alive and receiving x-ray therapy to the sacral area (Table 1).

According to Landing and Farber,<sup>6</sup> angiosarcomas are usually slow-growing neoplasms that do not metastasize widely. The neoplasms in our two patients were just the opposite. Angiosarcomas "ultimately metastasize by way of the vascular system to lungs, liver, bone and other organs," and may recur locally.

### Rhabdomyosarcoma

Four patients with rhabdomyosarcomas were admitted to this Hospital from 1949 to 1959. The ages of these patients ranged from 19 months to 66 years. All patients were dead within 18 months after operation, the average postoperative survival being 9.25 months. It should be noted that these patients had waited an average

of 2.4 months before seeing a physician and had surgical treatment on the average of three weeks later. X-ray therapy did not prolong survival time. Our experience with these four rhabdomyosarcomas is very discouraging (table 1). Stout's statement made in 1953 is still true today. "Too few cases have been studied to permit any definite statement about the best form of treatment, or about the efficacy of radiotherapy as adjuvant or replacement of surgery. One can only indicate that the ideal to be sought is wide removal or destruction of the tumor well outside of its palpable limits at as early a time as possible in the course of the disease." Other authors have also done extensive work in the study of these tumors.<sup>3, 4, 8, 9, 10, 11</sup> To this we must add that wide excision does not seem to be enough. This was done in three of our cases. It seems, therefore, that the only hope in the case of these patients is early radical extirpation. Radiotherapy, in conjunction with surgical removal in two of our cases, did little to prolong the course of the disease.

### Liposarcoma

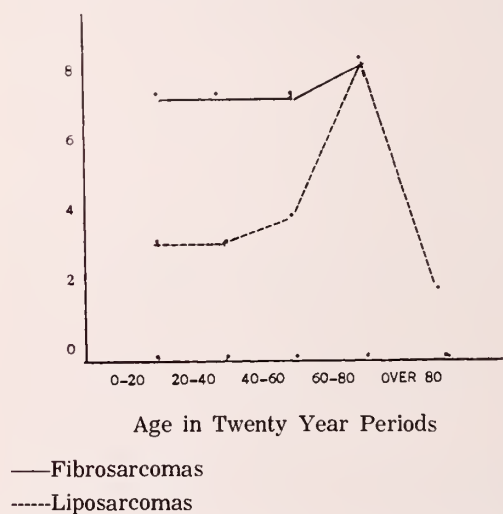
During this ten year period, twenty patients with liposarcomas were encountered. Nine were females and eleven were males. The youngest was one day of age and the oldest was eighty-five years. The age distribution is graphically shown in Figure 1. Fourteen of the twenty tumors were in persons over forty years of age. The location of the primary tumor varied considerably, but the most common sites were in the thigh, gluteal area, chest wall and neck (table 2). Eleven, or 55%, of the neoplasms occurred in the lower extremity if the gluteal area is included.

Two time intervals were of particular interest. The first was the interval that lapsed until a physician was consulted. In three of the patients, this information was not available. Of the remaining 17 patients, the average interval was 43 months. However, this includes three cases of 35 years, 12 years and 7 years respectively. If these three cases are excluded, the average interval of the remaining 14 cases was six



FIGURE 1

AGE DISTRIBUTION OF LIPOSARCOMAS AND FIBROSARCOMAS



months. The second time interval of interest was that between the date a personal physician was consulted and the date of operation. In two of the patients this information was not available. Of the remaining 18 patients the average interval was 3.4 months. This drops to 1.5 months, however,

if one patient is excluded with a three year waiting period.

Nine, or 44%, of those patients with liposarcomas had recurrences at the site of the primary tumor. Four, or 44%, who had local incision had an average recurrence time of 3.5 months, post-primary procedure. There were four recurrences following wide excision as the primary therapy, with an average time interval of eight months. There was one recurrence five months after primary radical excision. Four patients out of this total of twenty had multiple recurrent radical excision. Four patients out of this total of twenty had multiple recurrences. One case recurred 20 times. Three of these patients were those who had local excision as primary therapy. X-ray therapy was used in 13 patients. It was the sole treatment in one patient who at present has no signs of recurrence one year post-therapy. Four patients received x-ray therapy after wide excision, three patients after evidence of metastases, and five patients after just local excision.

The entire group of patients survived an average of 22.8 months post-primary therapy. Of the seven who have died in this series, the average postoperative interval until death was 13.8 months. Of the total 20 patients with a liposarcoma, there is adequate follow-up data on 15, or 75%. Of the other five cases, follow-up data was available from 9 months to six years post-therapy. Nine of the twenty, or 45%, had local excision as the first surgical procedure. This group had an average post-therapy survival of 24.6 months. Seven patients, or 35%, had wide excision as the primary therapy with an average post-therapy survival of 19.3 months. Three patients, or 15%, had radical surgery as primary therapy with an average post-therapy survival of 29 months (table 1). There seemed to be no statistically significant difference between the survival figures and their relation to primary therapy.

As noted by Stout,<sup>7</sup> the liposarcoma generally develops in the later years, and, next to the fibrosarcoma, it is the most frequent soft tissue sarcoma. Extensive work has been done in the study of this neo-

TABLE 2

LOCATION OF LIPOSARCOMAS AND FIBROSARCOMAS

Site	Lipo	Fibro
The Preauricular Area	1	2
Lt. Breast	2	—
Gluteal Area	2	2
Anterior Chest Wall	2	—
Neck	2	2
Back	1	—
Lower Leg	1	1
Retroperitoneal	1	6
Thigh	3	6
Lower Arm	—	1
Foot	—	2
Abdominal Wall	—	1
Larynx	—	1
Diaphragm	—	1
Mandibular Area	—	1
Upper Arm	—	2
Primary ? With Metastases To Mediastinum	—	1

plasm.<sup>1, 2, 12, 13, 14</sup> The average interval of six months from first noting the tumor until the physician was seen seems quite a long wait. This plus the 1.5 months wait from the visit to the doctor until operation increases the true time of delay to 7.5 months. Nearly half, 45%, of these patients had local excision as the first definitive treatment. There was a recurrence at the site of the primary tumor in 45% of these patients. The fact that nearly half of the patients who had local excision had recurrences of their tumor indicates that local excision is inadequate as the primary type of therapy for this lesion. However, there was no significant deference in survival time when comparing local excision, wide excision, and radical operation as the primary treatment. It is our opinion that early wide excision appears to be the best means of handling these tumors, although recurrence at the primary site may develop.

### Fibrosarcoma

Twenty-nine cases of fibrosarcomas were encountered and treated during this decade, of which eighteen were male and eleven were female. The ages of the patients ranged from 1½ to 75 years with a fairly even distribution (figure 1).

Twelve of these neoplasms occurred in an extremity (42%). Twenty-one per cent of the tumors were retroperitoneal in origin (table 2).

Two patients had no record of the time lapse between the patient's discovery of the lesion and his first visit to a physician. For the other 27 patients, the average elapsed time was 51.8 months. However, if five patients with 12, 23, 38, 7½ and 30 years' waits are excluded, the average for the other 22 patients is 3.2 months. After contacting the physician, the average length of time until operation of these 29 patients averaged 3.7 months with a range from one day to 35 months.

Thirteen of the 29 patients, or 45.5%, had local excision, four patients, or 14%, had wide excision, and four patients, or 14%, had radical surgery as the primary

therapy. Six patients received primary x-ray therapy. Two patients received no treatment. Four of the six patients who received primary x-ray had retroperitoneal tumors. Eleven patients, or 38.5%, had recurrences at the primary site. All of these patients had first been treated by local excision. Of those lesions that were treated first by local excision, 83.6%, recurred at the primary site.

Of the original 29 patients adequate follow-up data has been gathered on 25 of these, or 86.2%. Of the four patients with insufficient follow-up data, two have had no follow-up data recorded at all. The other two patients have been followed 16 months and 24 months, respectively. These patients all were asymptomatic when last examined. However, since they have not been examined in the last six months, they are not included in the statistics. The average post-therapy survival for patients with adequate follow-up was 38.2 months. Of those 12 patients who died from their primary disease, the average post-treatment survival was 14.3 months.

The average post-primary therapy survival time for the above groups is as follows: local excision—49 months, wide excision—59 months, radical excision—67 months, excluding the case where amputation was done in the face of already present pulmonary metastases (table 1). Those patients who had x-ray therapy as the primary therapy were all dead within 20 months, and three of the four within seven months. All of the patients who had radical operation at the time of primary treatment are alive, excluding the one patient with pulmonary metastases. The average survival time of these three patients is 67 months, or 5.8 years, post-primary treatment.

The fibrosarcoma is the most common tumor of the soft tissues. The average elapsed time from discovery of the tumor until seeing a physician was 3.4 months and from then until operation an added 3.7 months for a total of 7.1 months from recognition of the lesion until treatment. This figure is close to the 7.5 month interval of the lipo-

sarcoma group. 45.3% of these patients had local excision as the primary treatment and of these 83.6% had recurrences at the primary site. One hundred per cent of all lesions that recurred had local excision as the primary treatment. Local excision, therefore, should be excluded as the primary treatment and early radical excision seems to be the most effective procedure.

### Summary

In the ten year period from 1949 to 1959, two patients with angiosarcomas, four patients with rhabdomyosarcomas, twenty patients with liposarcomas, and twenty-nine patients with fibrosarcomas were treated at the University of Oklahoma Medical Center. The results of treatment of these patients are presented as well as a brief discussion of each type of tumor. We conclude that, at the very least, these tumors should be treated by wide excision as the primary,

definitive therapy. This should be done as soon as possible.

### REFERENCES

1. Caputo, N. T., Spaulding, E. D.: Mediastinal Liposarcoma. *Harper Hosp. Bull.*, 11-12: 122, 1953-1954.
2. Schick, A., Rogers, L. S.: Liposarcoma: Case Reports and Discussion of Its Pathology, Diagnosis and Treatment. *Am. J. Roent.*, 80: 799, 1958.
3. Harn, R. C., Enterline, H. T.: Rhabdomyosarcoma: A Clinicopathologic Study and Classification of 39 Cases. *Cancer*, 11: 181, 1958.
4. Fisher, E., Gruhn, J.: Perianal Rhabdomyosarcoma: Clinical and Pathological Feature of a Perianal Rhabdomyosarcoma in a 25 Year Old Man. *AMA Arch. Surg.*, 77, 230, 1953.
5. Gray, C. P., Biorn, C. L.: Rhabdomyosarcoma of the Spermatocord. *J. of Urol.*, 74: 402, 1955.
6. Landing, B. H., Farber, S.: Tumors of the Cardiovascular System. *Nat. Aca. of Science, National Research Council*, Washington, D. C., 1956.
7. Stout, A. P.: Tumors of the Soft Tissues. *National Research Council*, Washington, D. C., 1953.
8. Arean, V. M., Marcial-Rojas, R. A.: Rhabdomyosarcoma in Children. *Am. J. Surg.*, 93: 143, 1957.
9. Pack, G. T., Eberhart, W. F.: Rhabdomyosarcoma of Skeletal Muscle. *Report of 100 Cases. Surg.*, 32: 1023, 1952.
10. Stout, A. P.: Rhabdomyosarcoma of Skeletal Muscle. *Ann. Surg.*, 123: 447, 1946.
11. Caffey, J., Anderson, D. H.: Metastatic Embryonal Rhabdomyosarcoma in the Growing Skeleton. *AMA Jr. of Diseases of Children*, 95: 581, 1958.
12. DeWeerd, J. H., Dockerty, M. B.: Liposarcoma Retroperitoneal Tumors. *Am. J. Surg.*, 84: 397, 1952.
13. Pack, G. T., Peirson, J. C.: Liposarcoma, Study of 105 Cases. *Surgery*, 36: 687, 1942.
14. Stout, A. P.: Lipoma-malignant Tumors of Lipoblasts. *Amer. Surg.*, 119: 86, 1944.

800 N.E. 13th, Oklahoma City, Oklahoma

Oklahoma Eye Bank has been accepted as an affiliate of the Eye Bank for Sight Restoration, New York City. Only 14 other eye banks over the nation have met affiliation requirements. In the first year and a half of operation, the Oklahoma Bank has provided corneal material for 78 transplant procedures, but still has a long waiting list of patients. The Lions Club sponsored bank is housed in the Medical School annex.



# Milk-Alkali Syndrome or Hyperparathyroidism?

*Proceedings of a weekly conference sponsored by the Medical and Surgical Services, VA Hospital and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine and edited by Rene Menguy, M.D., Ph.D., and Mrs. Esther Compton.*

THE PATIENT is a 62-year-old, white male policeman who was admitted with the main complaint of shortness of breath. He gave a history of asthma since childhood, and recently had been complaining of dyspnea on slight exertion. His major difficulty was during the pollen season. About five years prior to this present admission he began to have attacks of severe exertional dyspnea somewhat relieved by rest. This has gradually progressed over the past five years and at present he is unable to walk more than one block on level ground and to climb more than one flight of stairs without having to stop. A week prior to this admission, he had another severe attack of dyspnea with peripheral cyanosis. His doctor diagnosed pneumonia and administered penicillin. Following this attack, he remained dyspneic and noted some pitting edema of his lower extremities. Fourteen years ago the patient was admitted to this hospital complaining of nausea and vomiting with some intolerance to fatty food. At that time, a gall bladder series revealed cholelithiasis. A cholecystectomy was done with good results. The upper gastrointes-

tinal series was reported as normal. Since then he has complained of occasional episodes of heart burn and epigastric distress relieved by antacids. He usually takes four teaspoonfuls of the antacid daily along with as much as two quarts of milk a day.

Upon admission the patient was noted to have an increased AP diameter of his chest with minimal excursion of his diaphragm and a fixed rib cage. There were rales throughout both lungs, especially on the lower lung fields on the left. The liver border was palpable two fingerbreadths below the costal margin and there was moderate ankle edema. The neck veins were distended. The skin of the neck had a yellowish discoloration and appeared wrinkled. The skin in this area felt greasy to palpation and, when stretched, returned very slowly to its normal position.

The patient had obvious pulmonary edema at the time of admission. He was digitalized rapidly, sedated and given Diuril. Within the next 36 hours he lost eight pounds, the chest cleared and he has since had no difficulty with shortness of breath.

The laboratory studies that were done during this hospital stay were summarized in table 1.

After finding an elevated serum calcium, all antacids and milk were removed from the patient's diet. However, his gastroin-

TABLE 1

	11/9/58	11/18	11/21	11/24	12/2	12/5	12/12	12/29	2/2/59
Hemoglobin g.	13.5	14.1		12.5			8.0	10.3	120
Urea N. mg. %	12	20							
Creatinine mg. %					1.6				1.2
Sodium mEQ/l	148	128		134		140			143
Potassium mEQ/l	3.4	4.2		3.8		3.5			3.8
Bicarbonate mEQ/l	33	40		31		32			27
Chloride mEQ/l	104	78		98		92			101
Glucose mg. %	90								
Alkaline Phosphatase (B.U.)	3.2					4.1			
Albumin (g)	2.9			3.0	3.4				
Total protein (g)				5.8	5.7				
Calcium (mEQ/l)			5.5	6.2	7.2	6.5	4.8		5.7
Phosphorus (mg. %)			2.3	3.8	2.7	2.4	2.7		4.8
Urinary Calcium (mg./24 hrs.)						48			
Tubular Reabsorption of Phosphorus					91%				
(Spec. Gravity	1.010	1.006		1.003				1.005	1.008
Urinalysis(Albumin	0	0		0				0	Trace
(Sugar	0	0		0				0	0
Microscopic	2-4 R.B.C.	1-2 R.B.C.		4-6 W.B.C.				0	10-15 R.B.C.
P.S.P.			(15 min.=6%						
			(30 min.=15%						

testinal symptoms worsened, his hemoglobin dropped from 14 to 8 and the stools which had been negative for blood became positive. Therefore an ulcer regimen without the antacids was resumed and iron was prescribed. In view of the high calcium an eye consultation was deemed necessary. This was negative particularly with respect to angioid streaking of the fundi and calcium deposits in the conjunctiva. When the patient was placed on a low calcium diet, the serum calcium dropped to five milliequivalents per liter and the urine calcium was 48 mgs. %, values which are within the normal range.

*Doctor Ridings:* The only abnormal studies that we have on this patient at present are the upper gastrointestinal series and the intravenous pyelogram. The former show some irregularity of the antrum with a small outpouching of the lesser curvature, suggesting the possibility of a shallow lesser curvature ulcer. The other x-rays that we have on this patient are pertinent only in regard to the negative findings. In view of the abnormalities in the calcium metabolism found in this patient, a diagnosis of hyperparathyroidism is considered. The skull x-ray on this patient is normal in appearance whereas with hyperparathyroid disease one would expect to find osteoporosis. We cannot look for the absence of the lamina

dura, a characteristic sign of hyperparathyroidism, since this patient is edentulous. One of the early bony changes in hyperparathyroidism is the presence of subperiosteal resorption of the bones of the fingers and the phalanges; these are not found in our patient. One also looks for the presence of bone cysts with or without demineralization. Kidney stones or diffuse nephrocalcinosis are an important manifestation of hyperparathyroidism. Our patient does have renal stones.

*Doctor Smith:* Prior to discussing the specific diagnosis in this patient, it may be pertinent to review the physiology of calcium metabolism in the body. The dietary calcium becomes a part of the intestinal calcium pool which is also composed of calcium excreted into the intestine. Approximately 100 mgs. is absorbed per day from this pool. Various local factors within the intestine enhance or decrease the absorption of calcium. For instance, a patient on a protein free diet will absorb less calcium from the intestine. Protein free diets can be used in the treatment of hypercalcemia. On the other hand, a low intestinal pH and vitamin D will promote absorption of calcium. The absorbed calcium goes into the interstitial fluid calcium pool, containing about 900 mgs. of calcium. Bone is the largest reservoir of calcium, containing approximately one million

mgs.; a constant interchange of calcium between the bone and the interstitial fluid occurs and is under the control of the parathyroid gland. A fall in the serum calcium or a rise in the serum phosphorus is a stimulus to parathormone secretion. Parathormone acts in two ways: on the one hand it increases the excretion of phosphorus in the urine, thus allowing a secondary rise in the serum calcium; on the other hand it acts by promoting a direct release of calcium from bone. The normal individual is in a zero calcium balance and the 100 mgs. of calcium that are absorbed from the intestine daily appear in the urine. A normal individual will excrete between 50 and 150 mgs. of calcium per day in the urine. Our patient is excreting only 50 mgs. The dietary calcium has very little influence in raising or lowering body calcium. If excess calcium is given in the diet, only a small proportion of this will be absorbed, the remainder being excreted in the stool. It is very difficult, indeed, to understand how an excess of calcium alone could raise the serum calcium, since in addition the normal kidney is able to excrete a large amount of calcium. As much as 500 mgs. per 24 hours of calcium can be excreted by the kidneys. Therefore, it is difficult to produce hypercalcemia in the face of normal renal function. Of course this threshold can be exceeded if the kidneys had to excrete more than 500 mgs. per day. Furthermore, in face of pre-existing renal damage, it is quite reasonable to expect that the threshold could be exceeded at a lower level of calcium excretion. Under these conditions hypercalcemia can be produced and such was the case with the condition known as Vitamin D intoxication which was formerly seen in children.

The milk-alkali syndrome will be discussed at greater length below. However, I think that the one factor lacking in this patient to make a diagnosis of milk-alkali syndrome is the fact that his intake of milk and alkali was very small compared to what is usually reported in patients with this syndrome. I cannot reconcile the rise in serum calcium noted in our patient with an intake of milk of only two quarts daily.

Osteolytic bone tumors constitute another cause of hypercalcemia. Carcinoma of the breast with bony metastases can produce hypercalcemia. Multiple myeloma is sometimes complicated by a high serum calcium. Sarcoid may be associated with a high calcium. The mechanism for this is an excessive uptake of calcium from the intestine, and it has been postulated that in patients with sarcoidosis a substance similar to Vitamin D is responsible for this. Acute osteoporosis is another cause of hypercalcemia. In the usual type of chronic osteoporosis, however, the kidney is able to excrete the excess calcium liberated from bone.

Another cause of hypercalcemia has been only recently described and represents a very fascinating entity. Plimpton and Gellhorn<sup>1</sup> in New York have reported 10 cases of patients with carcinomas of various types; hypernephromas, adenocarcinomas of the uterus and the ovary and carcinomas of the liver and of the prostate who developed hypercalcemia without recognizable osteolytic lesions. Serum calcium returned to normal in several of the patients when the carcinoma was removed. Furthermore, normal alkaline phosphatase determinations done on these patients made it unlikely that the calcium was augmented from destroyed bone. The association of a low phosphorus with a high calcium in some of these patients suggests that such tumors are producing a substance very similar to parathormone with a similar action under the reabsorption of phosphorus by the renal tubules. It is also possible that these particular tumors are secreting a substance having a greater affinity to bind calcium. Since our patient has a gastric lesion which could be malignant, it is interesting to speculate on the possibility of such a mechanism playing a role in the abnormal calcium and phosphorus metabolism that has been found.

*Doctor Woods:* I would like to focus the discussion of the problem presented by this patient on whether he has a milk-alkali syndrome or whether the changes in calcium and phosphorus represent true hyperparathyroidism.

In about 85% of cases, hyperparathyroidism is due to a parathyroid adenoma. In



10% of the cases, diffuse parathyroid hyperplasia is responsible for the increased activity. Cancer of the parathyroids is found in approximately 1% of cases with hyperparathyroidism.<sup>2,3</sup> It appears that parathyroid hormone has two actions: one is a mobilization of calcium from bone resulting in hypercalcemia; the other seems to be a decreased reabsorption of phosphorus by the renal tubules. The metabolic alterations seen in hyperparathyroidism are characterized by hypercalcemia and hypophosphatemia. However, it is rather important to note that we are diagnosing at the present time more and more cases of hyperparathyroidism in patients with a serum calcium that is normal or at the upper limits of normal. The important diagnostic criterion in such patients is a lowered serum phosphorus. Because of this, it is important to make the diagnosis before the onset of renal damage. When the latter occurs, the kidney has a decreased ability to excrete phosphorus so that when the disease has progressed to a certain stage, a high phosphorus level is found. This makes the diagnosis of hyperparathyroidism more difficult since, (I repeat) in many cases the diagnosis of hyperparathyroidism will depend on the finding of a low serum phosphorus.

Because one of the effects of parathyroid hormone is a decrease in the reabsorption of phosphorus by the renal tubule, the determination of the phosphate reabsorption in any given patient will give a good estimation of parathyroid activity. In a normal individual, 85% to 90% of the phosphorus in the glomerular filtrate is reabsorbed by the tubules. In patients with definite hyperparathyroidism there is decreased reabsorption of phosphorus by the tubule, so that the phosphate reabsorption is only 70% or less.

Another clinical test based upon this physiological effect of parathyroid hormone is called the calcium loading test. If a normal individual with suspected hyperparathyroidism is given several grams of calcium intravenously, the increase in serum calcium produces a momentary suppression of parathyroid secretion. This results in a secondary decrease in the amount of phosphorus in the urine, or in other words, in an increase in

the tubular reabsorption of phosphate over 85%. In primary hyperparathyroidism there is no change in phosphate handling by the kidney under these conditions. In our patient the tubular reabsorption of phosphorus was 91%, which is within the normal range. There are two possible explanations for this: The first one is the presence of renal disease which would result, of course, in a decreased ability to excrete phosphorus. The other possibility is that he does have a parathyroid adenoma and that the latter is not hypersecreting constantly but only intermittently.

As mentioned previously, we are seeing fewer and fewer patients with hyperparathyroidism and classical bone disease. The reason for this is not entirely clear but consequently we are recognizing other symptoms of the disease. One manifestation, which has been recognized only recently, is the development of personality disturbances to the degree of frank psychosis. Symptoms are completely reversible following removal of the parathyroid adenoma. A great many of these patients have gastrointestinal symptoms. Between 20% and 30% of all patients with parathyroid adenomas have a duodenal ulcer. The development of pancreatitis in patients with hyperparathyroidism has become recognized recently. Characteristically these patients have extreme muscular hyperlaxity. This is accompanied by weakness that may be extremely pronounced and can involve the respiratory muscles. Metastatic calcification is, of course, one of the striking complications. When this involves blood vessels of the extremities gangrene can occur. Metastatic calcification can occur extremely rapidly, particularly during states of parathyroid crisis when there is a rapid rise in the serum calcium to levels of 20 or 25 mgs.%. The predisposing cause for a parathyroid crisis is an episode of vomiting or gastrointestinal bleeding resulting in a decreased renal blood flow. The resultant dehydration and oliguria lead to rapid deposition of calcium throughout the body. One of the recent developments in hyperparathyroidism is an increased awareness of renal lithiasis as the only manifestation of hyperparathyroidism.

The reason for the formation of renal stones in a patient with an increased concentration of calcium in the urine is of course obvious. Less obvious is the mechanism of nephrocalcinosis which is a diffuse deposition of calcium salt in the kidney. This results in tubular disease with a glomerular filtration rate that is relatively unchanged. The urine has a low, fixed, specific gravity. Frequently there is acidosis in hyperparathyroidism.

The milk-alkali syndrome<sup>4</sup> which is another possibility in our patient, was first described by Burnett in 1949. The salient features of this syndrome are the development of hypercalcemia without hypercalciuria, alkalosis and evidence of renal insufficiency. The serum phosphorus is normal or elevated. Such patients have a history of continuous excessive intake of alkali, along with an excessive intake of milk. The high alkali intake is more essential in the causation of the milk-alkali syndrome since the latter has never been seen in patients with a sole history of heavy milk intake. Metastatic calcification of muscles, kidneys and eyes is frequently found. The changes are reversible following the withdrawal of milk and alkali.

I do not believe that our patient has the milk-alkali syndrome since his serum phosphorus was low on at least several occasions. Furthermore, I believe that, even if further studies are negative, this patient should have a cervical exploration for parathyroid adenoma.

Finally we have to consider the gastrointestinal lesion presented by this patient. There is some doubt in our minds whether this is benign or malignant and I feel that this patient should be followed very closely with gastrointestinal x-rays and if the lesion does not disappear within four to six weeks the patient should have an abdominal

exploration. The gastrointestinal lesion and the bleeding presented by the patient is further complicated by the fact that a diagnosis of pseudoxanthoma elasticum was made both on the clinical appearance of the neck and by skin biopsy. Since this is a disease of blood vessels as well as of the skin, vessels over the body and the gastrointestinal tract are also affected, and as a result, massive gastrointestinal bleeding can occur in these patients. This, of course, complicates our interpretation of his gastrointestinal lesion.

*Doctor Hammarsten:* Before we end our discussion I would like to ask the surgeons whether or not this patient should be explored and, if so, whether his neck or his abdomen should be explored.

*Doctor Menguy:* I think that so far we have very little evidence to support a diagnosis of primary hyperparathyroidism. Before milk and alkali were withdrawn we had two low serum phosphorus levels and one normal level. If the changes in kidney function and calcium levels noted in this patient are indeed on the basis of a milk-alkali syndrome, there should be a very rapid return to normal in two or three months. If at that time a high calcium and low normal phosphorus are found, I agree that his neck should be explored. The lesion in his stomach should also be watched very carefully. The location on the lesser curvature is somewhat reassuring. At this time I would at least recommend gastroscopy.

#### REFERENCES

1. Plimpton, C. H. and Gellhorn, A.: Hypercalcemia in Malignant Disease Without Evidence of Bone Destruction; *Am. J. Med.*, 21: 750, 1956.
2. Albright, Fuller and Relfenstein, Edward C.: Parathyroid Glands and Metabolic Bone Disease; Williams and Wilkins, 1948.
3. Bogdonoff, Morton D. M.D., Woods Alexander, H., M.D., White, J. Earle, M.D., and Engle, Frank L., M.D.: Hyperparathyroidism; *Am. J. of Med.*, 21: 583, 1956.
4. Wenger, Julius, M.D., Kirsner, Joseph B., M.D. and Walter, L., M.D.: The Milk Alkali Syndrome, *Gastroenterology*; p. 747, 1957.

924 N.E. 13th, Oklahoma City, Oklahoma





PARSONS



NATIONS



BRACKEN



KIRKMAN



JOHNSTON



BRADEN



HONSKA



LEE



WELSH

## Eleven Appointments Approved by Regents

University of Oklahoma Regents have approved the following appointments to the faculty of the University of Oklahoma School of Medicine.

Oscar Albert Parsons, Ph.D., professor of medical psychology, Department of Psychiatry, Neurology and Behavioral Sciences. He comes here from Duke University, where he was associate professor and assistant head of the division of medical psychology and director of internship training. He received his Ph.D. at Duke; interned with United States Public Health Service, was a fellow at Worcester state hospital and Duke graduate school.

Frankie Nell Nations, M.D., assistant professor of anesthesiology, replacing Walter H. Massion, M.D., who was granted a one year leave for a research traineeship at the University of California. Doctor Nations, a graduate of Baylor University School of Medicine, has been in private practice in New Braunsfels, Texas, the past three years.

Everett C. Bracken, Ph.D., assistant professor of microbiological research, Department of Pediatrics. He earned his Ph.D. at

Vanderbilt university; for the past three years has been assistant professor of microbiology at Vanderbilt.

Henry Neil Kirkman, M.D., assistant professor of pediatrics, comes to the Medical Center from the National Institute of Arthritis and Metabolic Diseases, where he was a member of the research staff last year and previously was a research fellow. He was graduated from Johns Hopkins Medical School in 1952, interned at Johns Hopkins and Vanderbilt University Hospital and was an assistant pediatric resident at Vanderbilt.

Richard Eugene Johnston, physicist, Isotope Laboratory, and instructor in radiological physics, Department of Radiology. Johnston has a master's in physics from Vanderbilt University, was an Atomic Energy commission fellow at Oak Ridge National Laboratory and, more recently, an engineer with Atomics International Research in Canoga Park, California.

Barbara Foster Braden, M.D., assistant physician in charge of Medical Center Health Service and instructor in preventive medi-



cine and public health. A 1957 graduate of the Oklahoma University Medical School, Doctor Braden interned and took one year of residency training in internal medicine at the Medical Center.

Walter Lee Honska, M.D., instructor in medicine and in preventive medicine and public health. Another Oklahoma University Medical School graduate, Doctor Honska interned at the Oklahoma City VA hospital, and stayed on at the Medical Center as a pediatric resident for one year and a resident in medicine for two years. He served as chief resident in medicine at VA last year.

Norman K. Lee, M.D., instructor in pathology. A graduate of National Chung Cheng Medical College, Nanchang, China, Doctor Lee interned at St. Joseph hospital, Patterson, New Jersey; took three years of pathological anatomy residency training at Jewish Hospital of Brooklyn, a one year anatomy residency at Sacramento county hospital, Sacramento, California, and two

years in clinical pathology at the San Francisco Veterans hospital.

Jack D. Welsh, M.D., instructor in medicine. Doctor Welsh, chief resident in medicine at University hospitals last year, is a graduate of Nebraska School of Medicine and interned here.

Hideo Namika, M.D., instructor in pathology. He received his medical training at Maebashi, Japan, interned at Yokohama National hospital, and had six years of residency training at the University of Yokohama School of medicine before coming to the Medical Center as a resident in 1956.

Cecil Calbert Bridges, Jr., Ph.D., research associate in pediatrics, to work primarily in the Child Study center at Children's Memorial hospital. He holds a Ph.D. from Texas university; has served as a research scientist and research associate in speech at Texas and Northwestern universities and as a research evaluator for Oklahoma City public schools.

## ABSTRACTS

### **Wound Healing: Investigation of Proteins, Glycoproteins and Lipids of Experimental Wound Fluid in the Dog (24937)**

BETTY N. WHITE,\* M. R. SHETLAR,\*\* HELEN M. SHURLEY\*\*\* and JOHN A. SCHILLING\*\*\*\*

Proceedings of the Society for Experimental Biology and Medicine, 101: 353-356, 1959

Surgical implants of stainless steel mesh cylinders were made into subcutaneous tissue of dog's back. These were removed at intervals of one to four weeks. Wound fluid was aspirated from inside these cylinders encapsulated with fibrous tissue. When compared with animals serum, this fluid was lower in protein, glycoprotein, and lipid; and these components decreased with time during post-wound period. As studied by paper electrophoresis, wound fluid had a higher per cent of albumin and lower alpha-2 and beta-1 globulin. An elevation of protein-bound hexose was found in beta and gamma globulin fractions at three to four weeks. Seromucoid was present at same

level in wound fluid and serum. The lipid partition revealed especially low phosphatides but similar cholesterol:protein ratios. It appears that time-related changes occur in large molecular constituents of fluid found in wound area which may be significant in wound healing phenomenon.

\*Research Technician.

\*\*Associate Professor of Biochemistry.

\*\*\*Research Technician.

\*\*\*\*Professor of Surgery.

### **The Comparative Pharmacology of Tolbutamide, Carbutamide, Chlorpropamide And Methexamide in Man**

KELLY M. WEST,\* and PHILLIP C. JOHNSON\*\*

Metabolism, 8: 596-605, 1959

The absorption of orally administered chlorpropamide and methexamide in man is rapid and is usually virtually complete in two to three hours. The absorption of carbutamide is somewhat slower, and

the absorption of tolbutamide occurs much more slowly. Absorption of each of these four drugs is eventually virtually complete.

We found no evidence of differences in the potencies of tolbutamide, metahexamide and chlorpropamide in acute experiments in which serum levels of comparable magnitude were produced after oral administration. However, hypoglycemic responses of normal subjects to metahexamide immediately after intravenous administration suggested that it was about three to four times as potent as tolbutamide.

The serum levels of tolbutamide, metahexamide, carbutamide and chlorpropamide after intravenous injection are much too high to be compatible with the concept that they are uniformly distributed in the extracellular fluids. Direct measurements of tolbutamide, chlorpropamide and carbutamide in extracellular fluids other than serum such as edema, ascitic and pleural fluid indicate that levels in these extracellular fluids are considerably lower than in serum.

The serum levels of tolbutamide, chlorpropamide and carbutamide 40 minutes after an intravenous injection are virtually identical, suggesting that there are no substantial differences among these three compounds in respect to the volume in which they are distributed in the body.

\*Instructor in Medicine.

\*\*Associate Professor of Medicine.

### **Assay of Follicle-Stimulating Hormone In the Hypophysectomized Estrogen-Treated Immature Female Rat**

R. W. PAYNE,\* R. H. RUNSER,\*\* J. A. HAGANS,\*\*\*  
and R. D. MORRISON.\*\*\*\*

Endocrinology, 65: 389-394, 1959

An assay for pituitary follicle-stimulating hormone (FSH) using the estrogen-treated, hypophysectomized immature rat is presented.

Linear dose-response curves, which correlated with histological evidence of maturation of follicles, were observed with various preparations tested for FSH activity. Crude pituitary tissue from several species, as well as purified pituitary gonadotropins, were assayed for FSH content; potencies were evaluated by comparison of the slopes of the regression lines produced.

\* Associate Professor of Pharmacology and Instructor in Medicine.

\*\*Intern, Mary Imogene Bassett Hospital, Cooperstown, New York.

\*\*\*Instructor in Preventive Medicine and Public Health and Medicine.

\*\*\*\*Associate Professor of Mathematics, Oklahoma State University, Stillwater, Oklahoma

### **Activation of the Ischemic Ventricle And Acute Peri-Infarction Block in Experimental Coronary Occlusion**

LOYAL L. CONRAD,\* T. EDWARD CUDDY,\*\* and  
ROBERT H. BAYLEY.\*\*\*

Circulation Research, 7: 555-564, July, 1959

Changes in left ventricular activation during the first 10 minutes following occlusion of the anterior descending branch of the left coronary artery were studied in dogs by using multiple intramural electrodes. Intramural block in the region of maximal ischemia occurred within two minutes after occlusion in all 29 occlusion episodes. Delay in activation progressed to an average value of 0.0267 seconds at the end of five minutes in this region while a delay of lesser magnitude (about 0.0040 seconds) was observed later in the surrounding zone. Least ischemic regions showed no change. During the 10 minute observation period there was evidence of increasing delay in activation of the innermost muscle layers in the region of greatest intensity of ischemia so that opportunity was provided for tangential activation of the superjacent outer muscle layers. In one experiment, tangential activation persisted after the appearance of characteristic changes of infarction until the experiment was concluded 24 hours after occlusion.

In the third minute after occlusion the amplitude of the R wave in the outermost layers of muscle in the central ischemic zone was observed to increase. By the end of five minutes it had doubled in height and remained so until the occlusion was released. The increased amplitude of R was attributed to the presence of multiple accession boundaries in and adjacent to the most intensely ischemic zone. The results of stimulation of the endocardial point in the ischemic region were valuable in supporting this conclusion.

The zone of maximum block effect and the zone displaying greatest increase in the amplitude of R were coincidental but appeared only in a small area which could be overlooked unless the ventricular surface was carefully explored. There were no distinctive changes in lead V<sub>r</sub>.

Repeated occlusion and release in the same dog yielded the same results without significant differences in control or occlusion values.

Left bundle-branch block was produced by severing the left bundle and differed in all details from acute peri-infarction block resulting from coronary occlusion.

It is believed that these observations in dogs are pertinent to an understanding of the order of activation of the ischemic and freshly infarcted ventricle in man. The significance of these events for the development of peri-infarction block is apparent.

\*Assistant Professor of Medicine.

\*\*Fellow, Department of Medicine

\*\*\*Professor of Medicine.

When the vagus burns at both ends



## Pro-Banthine® with Dartal® moderates both mood and gastrointestinal spasm

The slow simmer of anxiety frequently causes kindred gastrointestinal overactivity. The spasticity and the accompanying distress of excess acid lead to loss of efficiency. Patients subject to such psychoenteric upsets require therapy to calm both ends of the vagus.

Pro-Banthine with Dartal contains two agents required for such dual therapy: Pro-Banthine to control and curtail the flare-ups of spasm, excess acidity and excess motility,

and Dartal to smother simmering anxiety and tension.

Pro-Banthine with Dartal contains 15 mg. of Pro-Banthine (brand of propantheline bromide) and 5 mg. of Dartal (brand of thiopropazate dihydrochloride) in each tablet.

*Dosage:* One tablet three times a day.

G. D. Searle & Co., Chicago 80, Illinois.  
Research in the Service of Medicine.



# PRESIDENT'S LETTER



## Just a Trace of Welfare — Enough to Start an Argument

For some time, the doctors representing OSMA on the Advisory Committee on Medical Care for Public Assistance Recipients have appreciated the necessity of and expressed the desire to have additional members of the Association observe the monthly meetings.

This would give a broader understanding and wider dissemination of the problems confronting the committee; the thinking, reactions and motivation of the non-physician members; and ultimately result in a larger number of Association members being prepared to assume the responsibility of membership on this committee, if called upon to serve. Whether we like it or not, we are in the Welfare Program up to our necks, and we need to be prepared.

I attended the meeting of the Committee on October 15, 1959 as an observer. I was impressed with the complexity of the problems presented and also with the necessity of continuing to have well informed, conscientious and dedicated members on this committee, as we have at present.

A summary of the September 1959 financial statement is interesting:

Total Income	\$1,050,236.00
Total Expenditures	1,264,931.33
Deficit	<hr/> \$ 214,695.33

It is obvious that the government embarked on a program with inadequate financing, even for its present limited scope. It is unrealistic to expect physicians to bear the brunt of financing the program by reduction of fees, when the allied services will not accept a pro rata reduction.

It is also obvious that even with adequate financing of such a program, all services involved should exercise great caution in operating within the letter and intent of the program regulations, in order to retain solvency.

*Alfred J. Baker M.D.*

## MEDICO-LEGAL BRIEFS

Prepared by the Law Department of the  
American Medical Association

*OHIO BILL WOULD ESTABLISH STATUTORY STANDARDS AND QUALIFICATIONS FOR ADMISSION OF PHYSICIAN TO HOSPITAL STAFF*—Currently there is, before the Ohio State Legislature, a bill, S.S.B. No. 413, known as the "King Bill" which would establish statutory standards and qualifications for the admission of a physician to a hospital staff. Specifically, the bill provides that:

"Any person who is licensed to practice medicine and surgery in this state, who has served in the armed forces of the United States during World War II or the Korean conflict as a commissioned medical officer and has been honorably discharged or separated from such armed forces, and who has completed an internship or internship and residency in a hospital in this state and has received a certificate of satisfactory performance from such hospital shall, subject to the rules and regulations of said hospital, be permitted to exercise his medical privileges to minister to the sick and needy in their homes, in his office, or in hospitals located in the county in which he resides.

"No hospital, whether publicly or privately owned, shall prevent any physician or surgeon who fulfills the requirements set forth in this section from ministering to the wants or the needs of any person admitted to a hospital who requests the services of such physician or surgeon or any person who is a physician's patient by reason of emergency or otherwise.

"No hospital, whether publicly or privately owned, shall, as a condition of admittance of a physician or surgeon to said hospital require that said applicant be a mem-

ber of a medical society or be a graduate of a specified class of medical school.

"When application is made to a hospital for admission by a physician or surgeon to exercise his medical privileges, such physician or surgeon shall be given written notice of acceptance or rejection. In the event of rejection of said application, notice of rejection shall contain the grounds upon which the applicant is denied admission. Failure, by the hospital applied to, to accept or reject said application within sixty days shall be deemed to be an acceptance of said applicant by the hospital."

The Ohio State Medical Society is opposed to this bill on the grounds that: (1) it deprives *every* hospital in Ohio of the right of governing itself and selecting those physicians who are to have the privilege of using its facilities; (2) it would make it impossible for a hospital to discharge its legal duty and responsibility to make sure that the physicians to whom it extends the use of its facilities are professionally competent and morally and ethically sound and that they will conform fully and willingly to the established rules, regulations and discipline of the institutions; (3) it is unconstitutional and invalid for the reason that it would deprive a hospital of the right to run its affairs in such a way as it deems best; and (4) it is unconstitutional and invalid for the further reason that it is arbitrary, unreasonable, and discriminatory.

*PRIVILEGED COMMUNICATIONS*—On March 10, 1959, the Governor of Georgia signed a bill making communications privileged between psychiatrists and their patients.

State of Ga., Act 304, March 10, 1959.

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*

## AMA to Hold 13th Clinical Meeting in Dallas

The American Medical Association's 13th clinical meeting December 1-4 in Dallas, Texas, will draw some 3,500 physicians, mainly from the southern and southwestern states.

Planned in cooperation with Dallas physicians, the meeting is designed to help the family physician meet his daily practice problems.

Doctor Everett C. Fox, Dallas, is general chairman of the meeting, while Doctor C. D. Bussey, Dallas, is program chairman.

Among the subjects to be discussed on the scientific program are soft tissue injury; whiplash injuries of the neck; diabetes; heart murmurs in children; new laboratory procedures; new resuscitation techniques; premarital and marital counseling, and the problem child.

Doctor Hubertus Strughold, professor of space medicine at the School of Aviation Medicine, Randolph Air Force Base, Texas, will be principal speaker at the opening scientific session December 1. Doctor Strughold, often called "the father of space medicine," will discuss the role of medicine in the space age.

The winner of the AMA's Distinguished Service Award at the Atlantic City meeting—Doctor Michael E. DeBakey—will participate in a symposium on the surgical considerations of cerebrovascular insufficiency Tuesday afternoon, December 1. Doctor DeBakey, chairman of the department of surgery at Baylor University College of Medicine, Houston, was given the award for his outstanding contributions to medicine in the field of vascular surgery.

The scientific program, including lectures, symposiums, medical motion pictures, color television, and nearly 100 scientific exhibits, will be held in Dallas Memorial Auditorium. Industrial exhibits will number 251.

The auditorium will also house the "world's largest health fair," sponsored by the Dal-

las County Medical Society in conjunction with the AMA. The fair will run from November 27 to December 7 and will be open to the public.

The fair will feature 150 educational exhibits, prepared by the AMA, allied health groups and voluntary health organizations. They will be manned by members of the Dallas society.

Another special feature of the AMA meeting will be a national conference on the medical aspects of sports, to be Monday, November 30—the day before the AMA meeting opens.

The conference, to be held under the auspices of the AMA's Committee on the Medical Aspects of Sports (formerly the Committee on Injury in Sports) will be open to athletic directors, coaches, and trainers, as well as interested physicians.

The program will cover the general areas of the physiology and pharmacology of exercise, the training and conditioning of the athlete, and the prevention and treatment of injuries.

This is the second time that the AMA has met in Dallas. It held an annual meeting there in 1926. One AMA president has come from Dallas—the late Doctor Edward H. Cary, who was inaugurated in 1932 at the New Orleans meeting.

The AMA House of Delegates, numbering 208, will meet throughout the week at the Adolphus Hotel, meeting headquarters. The first act of the House will be to name the General Practitioner of the Year. The late Doctor Lonnie Coffin, Farmington, Iowa, was the last recipient of the award, given annually to an outstanding American doctor for his medical and civic contributions to his community.

The first recipient of the award was Doctor Archer Chester Sudan, Kremmling, Colorado, who received the award at the first clinical meeting in January 1948 at Cleveland.



## McNamara Hearings Swerve to the Left

Forand Bill opponents who have been optimistic about its defeat in the next Congress had better look at their hole cards according to recent reports on regional hearings being conducted by Senator Pat McNamara, Democrat from Michigan. McNamara, who heads the Senate Labor and Public Welfare sub-committee on Aging, is leading his legislative entourage around the country in a simulated effort to poll public opinion on the "aging" question.

To exponents of the free enterprise solution to the problem, the results of the first three regional hearings have not been encouraging. The "Town Hall" type meetings, held in Boston (October 13-14), Pittsburgh (October 23) and San Francisco (October 28-29) have had all the appearances of "stacked deck" testimonials to the need for Federal intervention, particularly in the provision of governmental health care to the aged.

One basic threat which has been present in all meetings is the indication that the aged are already coalescing into voting blocs. A classic example is to be found in California where the old folks' California Institute of Social Welfare runs a fifteen minute daily radio program on twenty-three stations, publishes a sixteen page newspaper and conducts some two hundred public meetings a month.

Also evident is the alarming fact that the legislative group is mainly interested in confirming its preconceptions and preparing for a Forand-type measure next year, probably combined with a hike in social security benefits.

Illustrating some of the sentiment expressed during the hearings are the following random quotations:

### What the Liberals Said

•McNamara: "They (elderly) have special health and housing needs, and our hearings . . . point the need for considerable Federal action . . . some of these people are living on \$1,000 a year or less. They just can't exist on that."

•Phil Burton, Democratic Assemblyman, California: "Three major needs (1) Forand Bill or similar action; (2) Low-rent housing; (3) Increased OAA grants and a Federal law restricting states' rights to set residence requirements." He also stated that the age for OASI and OAA eligibility should be lowered.

•William L. Batt, Jr., Secretary of Labor and Industry, Pennsylvania: "Basic problem is simply a lack of money." Answer: Increase Social Security money benefits, earlier disability retirement provisions and health benefits through OASI.

•United Electrical Workers (Pittsburgh): Called for "... cradle to grave security . . . birthright of every American." Statement included proposal for free medical care to everyone.

•Thomas Pitts, President, California Labor Federation (AFL-CIO): "It is up to Congress to see that the AMA does not delay this bill indefinitely. The Forand bill must be passed."

•George McLain, Chairman and President, respectively, California Institute of Social Welfare and National Institute of Social Welfare: Generally, he threatened Congressmen with aged voting bloc; blasted the AMA for "dictatorial control in the medical and hospital fields" and attacked the Social Security Act as a supplemental program when "... it should be a real retirement program."

Specifically, McLain recommended:

1. Drastic revision of Act to include everyone 60 years or over, "whether they ever worked a day in their lives."
2. Social Security payments geared to Federal Minimum Wage Law, "now about \$173 per month."
3. Escalator clauses to provide automatic pay increases during inflation. Also called for lowering of retirement age during periods of high unemployment.
4. Retirees under Social Security should be permitted to earn at least \$2,400 per year and still qualify.
5. Give surplus food to aged.

# Oklahoma's General Practitioner of the Year

Elgin's Doctor Martin  
Is Council's Choice  
For National Honor



There are many paths to greatness. Some achieve such recognition through acts of heroism, others through unquestionably outstanding deeds and accomplishments in their chosen fields of endeavor. A few rise from the crowd

without fanfare or sensationalism . . . the hardest way . . . through years of quiet dedication and single-mindedness of purpose.

Such a man is Elgin's Doctor Chesley M. Martin, the Oklahoma candidate for the American Medical Association's General Practitioner of the Year Award.

When the Council approved the Comanche-Cotton District Society nomination, it was apparent that there were many present who were not acquainted with his accomplishments. This was readily understandable upon review of his record of forty-four years of service to the people of this area. His history revealed the picture of a modest, unheralded man, whose only motivation was to use every ability he possessed to help others. Indeed, the degree of his selflessness had been the mark of his greatness!

Through his tireless efforts to serve the citizens of this Southwestern Oklahoma town of five hundred, he has created a perfect image of the American family physician and has become the community's "first citizen" as well. The socio-economic problems plaguing medical men nationwide are of little interest to the people of Elgin. "What's all the fuss?," a typical citizen would say,

"If we get sick, we call Doc Martin . . . it's as simple as that."

## Pioneer Doctor

The seventy-year-old arrived in Elgin in 1916, one year after completing his final two years of medical education at the University of Oklahoma. His first two years were taken at Tulane, but he moved to Oklahoma from his native South Carolina in order to obtain summer employment from a brother in Fletcher.

He bought a modest frame home on credit when he moved to Elgin and is still living in it, although it has been gradually enlarged as the family grew. The children are: Warren O. Martin, D.D.S., Henrietta, Texas; Edwin P. Martin, D.D.S., Healdton, Oklahoma; Mrs. Marion Wheeler, wife of a Denver architect; and Mrs. Eugenia Keller, wife of J. P. Keller, M.D., Duncan.

## Time for His Town

From the beginning, Elgin grew and prospered under Doctor Martin's guidance. He has led the community through a sustained period of evolutionary development that has placed it on a part in many respects with cities several times its size and economic potential.

At the outset, he became a member of the Town Board and Chairman of the School Board; serving thirty-one years in the first capacity and now beginning his forty-second year as the community's educational leader. Evidence of his contributions to society may be seen in every aspect of community life.

The city's water system was realized as a result of his inspiration and drive. Elgin's





Aesthetically correct and structurally sound, the Martin-designed church features laminated wood trusses and extensive use of wood panelling.

old red schoolhouse still stands, but clustered around it now are newer facilities for the highschool students, separate buildings for the junior high and elementary schools, a school-owned barn for the local chapter of the Future Farmers of America and a large gymnasium.

#### **An Accomplished Architect**

Doctor Martin calls himself an amateur architect, but examples of his work show professional talent which belies his modesty.

In 1949, he drew plans and specifications for the gymnasium. Built at a cost of \$40,000, the structure seats twelve hundred persons.

He has also designed and supervised the construction of the \$58,000 Methodist Church. Not content with such contributions, the church's most revered trustee then donated an organ, a piano and service pieces for the holy table.



Members of the F.F.A. proudly display prize stock as Doctor Martin and instructor John Jones look on.

#### **Friend to Youth**

The young men of Elgin have found a real champion in Doctor Martin. He promoted the construction of a 6,000 square foot barn for the use of the F.F.A. chapter; the largest school-owned barn in the state.

His interest in the activity has resulted in one of the outstanding chapters of the youth organization. The \$7,000 Skelly Oil Trophy has been won twice by Doctor Mar-



Doctor Martin is shown greeting one of his 2,500 "deliveries," Henry C. Smith, M.D., 38-year-old Lawton physician.

tin's "boys." One more victory will give them permanent possession.

#### **Respected Colleague**

The legendary Doctor Martin, who still serves an area encompassing some twelve hundred square miles, is held in high esteem by his fellow practitioners. In 1958-59, he served as chief of staff of Lawton's Memorial Hospital, a 150 bed, fully-accredited institution. Upon learning of his nomination for the national honor, a Lawton physician aptly expressed the sentiment of his colleagues: "If Chesley doesn't win it's only because the judges don't know him as we do."





## *Have something to exhibit*

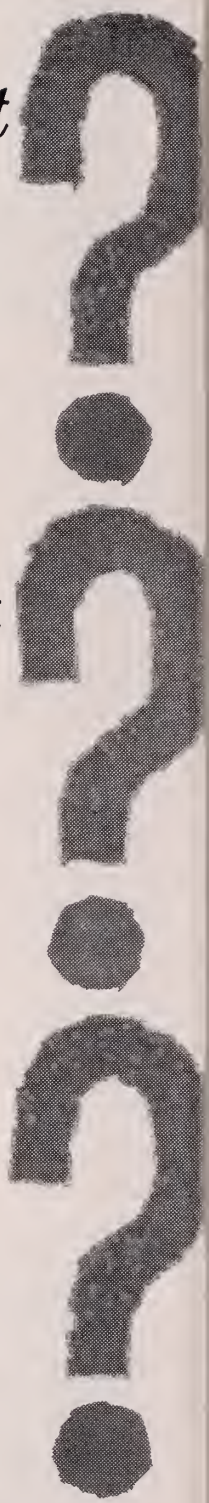
If so, you should apply now for space at the 1960 meeting of your association. Scientific Exhibits will again play a major role . . . so why not prepare a graphic presentation of your work and share it with the 700 physicians who will attend the state's largest medical meeting? A research or clinical project may be shown as an individual exhibit, or you may present a single case in the "Klinical Kaleidoscope" section.

## *Research or clinical project*

Perhaps you have done some original research, undertaken some experimental work, or simply drawn some conclusions based upon a series of interesting cases. Then you would be eligible to apply for an exhibit booth of your own in the Scientific Exhibit Section. A subject which has a special visual interest would be particularly suitable . . . and it need not be large—just stimulating!

## *Bizarre case*

All of us have encountered a unique case which is worth talking about. If you have a well-documented one which you would like to share with others, toss your hat in the ring today by completing the application on the opposite page. The "Klinical Kaleidoscope" section will be a varied selection of bizarre cases, each presented with one to five x-rays or illustrations and accompanied by a very brief abstract of the clinical course.



# **O.S.M.A. ANNUAL MEETING**

*municipal auditorium • oklahoma city*

*may 2-3-4, 1960*

# APPLICATION FOR SCIENTIFIC EXHIBIT SPACE

54th Annual Meeting

OKLAHOMA STATE MEDICAL ASSOCIATION

Municipal Auditorium — Oklahoma City — May 2, 3, 4, 1960

1. NAME AND ADDRESS OF APPLICANT:

2. TITLE OF EXHIBIT:

3. INDIVIDUAL BOOTH? ☐

"KLINICAL KALEIDOSCOPE" SECTION? ☐

4. SPACE REQUIRED:

A. BOOTH: Indicate width in multiples of eight feet \_\_\_\_\_

(All booths will be 6 feet in depth)

B. "KLINICAL KALEIDOSCOPE": Indicate square footage:

Wall-type display \_\_\_\_\_ Table top \_\_\_\_\_

5. A. GENERAL DESCRIPTION:

B. MATERIAL TO BE SHOWN (Subject matter):

C. METHOD OF PRESENTATION (x-ray, photos, graphs, models, etc.):

6. PREVIOUS SHOWINGS

## ACT NOW — SPACE IS LIMITED

Applications Must Be Received Prior to March 1, 1960

Oklahoma State Medical Association • Box 9696 • Oklahoma City





On location, the "Old Age and You" panelists are (left to right): Tom Sorey, architect; Doctor Louis M. Orr, AMA President; Steve Stahl, moderator; Doctor Rita Campbell, American Enterprise Association, and N. D. Helland, Director of Oklahoma Blue Cross-Blue Shield.

## "OLD AGE AND YOU" Telecast Is Big Success

An outstandingly well-received television program, concerning the challenge of an aging population, was recently aired to a large segment of the state through the facilities of KOCO-TV. A joint project of the Oklahoma Public Expenditures Council and the Oklahoma State Medical Association, "Old Age and You" was presented as a special, one hour feature program of the "Voice of the Taxpayer" series.

Under the direction of Mr. Steve Stahl, Executive Vice-President of the Council, the program was designed to mold a realistic attitude toward aging among the people of Oklahoma. Since its presentation, Mr. Stahl's office has received nearly two hundred requests for written transcriptions of the panel discussion.

Mr. Stahl moderated the panel, which was comprised of such notable personalities as Louis M. Orr, M.D., President of the American Medical Association; Rita Campbell, Ph.D., Consultant Economist to the American Enterprise Association, Washington, D. C.; N. D. Helland, Executive Director, Oklahoma Blue Cross-Blue Shield Plans, and Tom Sorey, Oklahoma City architect and board member of Senior Citizens, Incorporated.

The one billion dollar per year Forand Bill, which would provide "free" medical,

hospital, dental and nursing home care to social security recipients, received much attention from all of the panelists. Doctor Orr expressed the sentiment of the group, when he observed that such federal legislation would paradoxically lower the quality of health care being rendered to the elderly and would also fail to provide for the indigent elderly who could not qualify for the "benefits."

Doctor Campbell pointed out that the Forand Bill represented the establishment of a permanent program for a temporary situation. She explained that the low birth rates of the late 20's and early 30's would one day reverse the cycle of an aging population.

Mr. Helland said that such federal legislation would represent an untenable setback to the tremendous progress being made by prepayment plans and the insurance industry. He also criticized the cost of the Forand Bill in terms of the value to be received, stating that voluntary enterprise could deliver better coverage for less money.

One of the highlights of the program was Mr. Sorey's presentation concerning the community-sponsored retirement village now being planned for Oklahoma City.



## Nine Speakers Agree To Annual Meeting Talks

Burt F. Keltz, M.D., Chairman of the Association's Scientific Works Committee, has announced the names of nine noted physicians who have accepted invitations to appear on the scientific program of the 1960 Annual Meeting of the OSMA.

Representing the field of psychiatry will be Harold Rosen, M.D., Baltimore, Maryland; obstetrics-gynecology, Schuyler Kohl, M.D., Brooklyn, New York; Anesthesiology, Robert W. Virtue, M.D., Denver, Colorado; Dermatology, Vincent Derbes, M.D., New Orleans, Louisiana; Radiology, Ben Felson, M.D., Cincinnati, Ohio; Internal Medicine, Edgar Allen, M.D., Rochester, Minnesota; Surgery, Michael DeBakey, M.D., Houston, Texas; Orthopedic Surgery, Harold A. Sofield, M.D., Oak Park, Illinois; and, Urology, Grayson Carroll, M.D., St. Louis Missouri.

Positions which remain to be filled are in the fields of eye, ear, nose and throat, and pediatrics.

One outstanding feature of the program will be a morning session devoted to peripheral cardiovascular diseases. Doctors Allen, DeBakey and Virtue will speak on this subject for forty minutes each, followed by a panel discussion which will permit audience participation. Augmenting the discussion portion of the program will be local physicians from related fields.

The OSMA's 1960 meeting will be held in the Municipal Auditorium, May 2, 3, and 4.

## American Board of OB-GYN Schedules Examination

The Part 1 Examinations of the American Board of Obstetrics and Gynecology are to be held in various parts of the United States and Canada, on Friday, January 16, 1960, at 2:00 p.m.

Candidates must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the written examination unless this is done.

Current Bulletins may be obtained from R. L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

## Plans Formulated for Third Oklahoma Colloquy

A program on adrenal steroids has been developed for the Third Annual Oklahoma Colloquy on Advances in Medicine to be held March 24-26 at the University of Oklahoma Medical Center, Oklahoma City.

Fifteen guest lecturers and 13 members of the Medical Center faculty will participate.

Scientific papers will cover clinical application of the steroids in endocrinology, infectious diseases, gastroenterology, rheumatic disease, hematological diseases (including the leukemias and immuno-hematological disorders), neoplastic, collagen, renal and allergic diseases.

Others will deal with the basic physiological and biochemical aspects of adrenal steroids. The pharmacology and side effects also will be discussed.

In addition to the general sessions, special interest meetings are planned in the fields of medicine, pediatrics, surgery and basic science.

A dinner meeting March 25 will give registrants an opportunity to meet with the participants informally.

The Colloquy was planned by the Oklahoma Medical Center Department of Medicine and Office of Postgraduate Education in collaboration with the Oklahoma City Internists Association, Oklahoma City Surgical Society and the Oklahoma City Pediatric Society. Merck Sharp & Dohme is a sponsor.

Guest participants are:

Charles W. Daeschner, Jr., M.D., associate professor of pediatrics, Baylor University College of Medicine, Houston, Texas; William J. Harrington, M.D., associate professor of medicine, Washington University School of Medicine, St. Louis, Missouri; Oscar Hechter, M.D., research associate professor, School of Medicine (Boston) Worcester Foundation for Experimental Biology, Shrewsbury, Massachusetts.

S. Richardson Hill, Jr., M.D., associate professor of medicine, University of Alabama Medical Center, Birmingham; David M. Hume, M.D., chairman, Department of Surgery, Medical College of Virginia, Rich-

mond; Dwight J. Ingle, M.D., professor of physiology, the Ben May Laboratory for Cancer Research, Chicago, Illinois; James C. Melby, M.D., assistant professor of medicine, University of Arkansas School of Medicine, Little Rock;

Don H. Nelson, M.D., associate professor of medicine, University of Southern California, Los Angeles; Bram Rose, M.D., associate professor of medicine, McGill University Faculty of Medicine, Montreal, Canada; Lewis H. Sarett, M.D., director, Synthetic Organic Chemistry, Merck Sharp & Dohme, Rahway, New Jersey.

Richard T. Smith, M.D., associate professor of medicine, University of Pennsylvania, Philadelphia, and director Medical Services Division, Merck Sharp & Dohme Research Laboratories, West Point, Pennsylvania; Louis J. Soffer, M.D., clinical professor of medicine, State University of New York, and endocrinology chief, Mount Sinai Hospital, New York City;

Howard M. Spiro, M.D., assistant professor of medicine, Yale University School of Medicine, New Haven, Connecticut; Ralph Tompsett, M.D., director, Department of Medical Education, Baylor University Medical Center, Dallas, Texas; Lawson Wilkins, M.D., professor of pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland.

Additional information may be obtained by writing the Office of Postgraduate Education, University of Oklahoma Medical Center, 801 N.E. 13, Oklahoma City, Oklahoma.

## **Bahamas Conferences Outlined**

Ten medical conferences have been scheduled for the Bahamas during 1960 and through the spring of 1961.

An official certificate of attendance will be issued to those taking part in the conferences. Those attending may deduct all expenses pertinent to the conference from their income tax. American and Canadian citizens do not require passports. Vaccination certificates are not required.

Conferences, which will be held in Nassau, are: Eighth Bahamas Medical Conference,

British Colonial Hotel, November 27-December 17, 1959; Second Bahamas Surgical Conference, British Colonial Hotel, December 28, 1959-January 16, 1960; Second Bahamas Serendipity Conference, British Colonial Hotel, January 17-January 30, 1960; First Bahamas Allergy Conference, Nassau Beach Lodge, March 5-March 12, 1960; Ninth Bahamas Medical Conference, British Colonial Hotel, April 1-April 14, 1960; Post Convention Bahamas Conference, June 18-June 25, 1960.

Also scheduled are: Tenth Bahamas Medical Conference, British Colonial Hotel, November 25-December 16, 1960; Third Bahamas Surgical Conference, British Colonial Hotel, December 27, 1960-January 14, 1961; Third Bahama Serendipity Conference, British Colonial Hotel, January 15-January 28, 1961; and the Eleventh Bahamas Medical Conference, British Colonial Hotel, April 3-April 15, 1961.

Further information may be obtained by writing to D. L. Frank, M.D., Organizing Physician, Bahamas Conferences, P.O. Box 4037, Fort Lauderdale, Florida.

## **Samuel T. Moore, M.D. On Jordan Mission**

Samuel T. Moore, M.D., Oklahoma City, will be the fourth American orthopedist to go to Jerusalem to help in the medical care of the half-million Jordan refugees in that ancient city. He will spend two months doing orthopedic surgery and treatment, primarily among children, under a project of the international Orthopedic Letters Club.

Accompanying Doctor Moore, will be his daughter, Carol, 17, who is going along to act as secretary and medical assistant to her father.

The medical aid plan, while sponsored by the OLS, actually is a co-operative project involving many organizations and agencies in this country and Jordan.

Jordan was chosen by the OLC for an overseas program Doctor Moore said, "because the tremendous need there captivated our imagination." There is a critical shortage of orthopedic specialists in Jordan and



those available cannot begin to care for the need of refugees.

Arab Medical Society is issuing temporary licenses to practice to the OLC members. Medical International Corporation, which sponsors medical missions in spots around the globe, is crating and shipping supplies to be used.

#### **Others to Go**

OLC has pledged to keep at least one member of its group in Jordan for the next 18 months. All of the physicians will pay their own expenses. Other Oklahoma City physicians who plan to follow Doctor Moore are William Harsha, M.D., Russell Harris, M.D., Robert Holt, M.D., William Waldrop, M.D., and John R. Stacy, M.D.

In addition to the help being given directly through the physicians' skills, OLC members are studying a long-range plan to help establish a permanent orthopedic hospital and training center for Jordanian doctors in Jerusalem.

### **Date Set for New Orleans Graduate Medical Assembly**

New Orleans' Roosevelt Hotel will be the site of the twenty-third annual meeting of the New Orleans Graduate Medical Assembly which will be held March 7-10, 1960.

Guest speakers and their fields of medicine are: LeRoy D. Vandam, M.D., Boston, Massachusetts, anesthesiology; Clarence S. Livingood, M.D., Detroit, Michigan, dermatology; Henry D. Janowitz, M.D., New York, gastroenterology; John G. Walsh, M.D., Sacramento, California, general practice; E. Stewart Taylor, M.D., Denver, Colorado, gynecology; Charles H. Burnett, M.D., Chapel Hill, North Carolina, internal medicine; Donald F. Matson, M.D., Boston, Massachusetts, neuro-surgery; Frank R. Lock, M.D., Winston-Salem, North Carolina, obstetrics; Trygve Gundersen, M.D., Boston, Massachusetts, ophthalmology; Carroll B. Larson, M.D., Iowa City, Iowa, orthopedic surgery; John J. Conley, M.D., New York, otolaryngology; W. A. D. Anderson, M.D., Miami, Florida, pathology; Franklin H. Top, M.D., Iowa City, Iowa, pediatrics; Raymond J. Jackson, M.D., Rochester, Minnesota, proctology; Bentley P. Colcock, M.D.,

Boston, Massachusetts, surgery; David G. Pugh, M.D., Rochester, Minnesota, radiology; Robert M. Zollinger, M.D., Columbus, Ohio, surgery; and George C. Prather, M.D., Brookline, Massachusetts, urology.

Following the assembly, a West Indies clinical cruise has been planned. Scheduled to sail from Port Everglades, Florida on March 11th, the cruise will include stops in Puerto Rico, Virgin Islands, Martinique, Barbados, Trinidad, Curacao and Haiti. The ship will dock on March 25th.

Detailed information is available by writing to Mannie D. Paine, Jr., M.D., Secretary, the New Orleans Graduate Medical Assembly, 1430 Tulane Avenue, New Orleans 12, Louisiana.

### **American Cancer Society Seminar Scheduled**

Four guest speakers will highlight a professional seminar which has been scheduled by the American Cancer Society for December 5, 1959 in the Venetian Room of the Skirvin Hotel. The meeting will begin at 9:00 a.m. and continue until 5:00 p.m.

Speakers who will appear on the program and their subjects are: Lauren V. Ackerman, M.D., Professor of Surgical Pathology and Pathology, Washington University School of Medicine, St. Louis, "The Role of the Biopsy in Cancer of the Breast" and "Some Pathological Types of Breast Carcinoma;" Cushman D. Haagensen, M.D., Director of Surgery, Francis Delafield Hospital and Professor of Clinical Surgery, Columbia University, New York City, "The Choice of Treatment for Breast Carcinoma and Its Surgical Phase;" William T. Moss, M.D., Director, Therapeutic Radiology, Chicago Wesley Memorial Hospital, Chicago, Illinois, "The Place of Radiotherapy in the Treatment of Breast Carcinoma;" and Henry M. Lemon, M.D., Boston University School of Medicine, Boston, Massachusetts, "Hormonal Therapy for Breast Carcinoma."

Additional information may be obtained by writing to Miss Kay Daniels, Director, Public Information and Service, American Cancer Society, Oklahoma Division, 1401 North Robinson, Oklahoma City, Oklahoma.



wherever there is inflammation, swelling, pain

# VARIDASE<sup>®</sup>

Streptokinase-Streptodornase Lederle

## BUCCAL Tablets

### conditions for a fast & comfortable comeback

Host reaction to injury or local infection has a catabolic and an anabolic phase. The body responds with inflammation, swelling and pain. In time, the process is reversed. VARIDASE speeds up this normal process of recovery.

By activating fibrinolytic factors VARIDASE shortens the *undesirable phase*, limits necrotic changes due to inflammatory infiltration, and initiates the constructive phase to speed total remission. Medication and body defenses can readily penetrate to the affected site;

local tissue is prepared for faster regrowth of cells.

In infection, the fibrin wall is breached while the infection-limiting effect is retained. In acute cases, response is often dramatic. In chronic cases, VARIDASE Buccal Tablets can stimulate a successful response to primary therapy previously considered inadequate or failing.

*for routine use in injury and infection  
...new simple buccal route*

VARIDASE Buccal Tablets should be retained in the buccal pouch until dissolved. For maximum absorption, patient should delay swallowing saliva.


Dosage: One tablet four times daily usually for five days.

When infection is present, VARIDASE Buccal Tablets should be given in conjunction with ACHROMYCIN<sup>®</sup> V Tetracycline with Citric Acid.

Each VARIDASE Buccal Tablet contains: 10,000 Units Streptokinase and 2,500 Units Streptodornase.

Supplied: boxes of 24 and 100 tablets.

1. Innerfield, I.: Clinical report cited with permission
2. Clinical report cited with permission

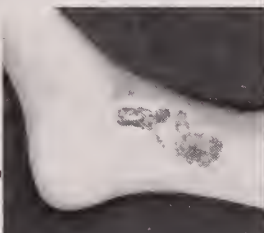
 LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY  
Pearl River, New York



**FORCE INJURY**  
severe bruises  
... swelling  
... cleared  
by fifth day<sup>2</sup>



**VARICOSE  
ULCER**  
15 years duration  
... resolved with  
VARIDASE<sup>1</sup>



**INFLAMMATORY  
DERMATOSIS**  
rapidly spreading  
rhus dermatitis  
healed within  
a week<sup>1</sup>



**INFECTED  
LACERATION**  
marked reversal  
in 3 days...  
returned  
to school...  
closure advanced<sup>1</sup>



**THROMBOPHLEBITIS**  
back on his feet  
in a week after  
recurrent episode<sup>1</sup>



**REFRACTORY  
CELLULITIS**  
normal routine  
resumed after 4 days  
of VARIDASE<sup>1</sup>



## Turner Participates in Endocrine Society Assembly

Henry H. Turner, M. D., Oklahoma City endocrinologist appeared as a panelist for two sessions of the 11th Post Graduate Assembly of the Endocrine Society, held in cooperation with the University of California School of Medicine.

Doctor Turner serves the Society as Secretary-Treasurer.

San Francisco was the site for the Assembly which was held November 9 through the 13th at Toland Hall, University of California Hospital, University of California Medical Center.

Doctor Turner participated in panel discussion with Moderator Brown M. Dobyns, M. D., F. Raymond Keating, M. D., Joseph E. Rall, M. D., Rulon W. Rawson, M. D., and Judson J. Van Wyk, M. D. Their subject was Disease of the Thyroid.

On Thursday, November 12, a panel including Carl G. Heller, M. D., E. Perry McCullagh, M. D., S. J. Segal, M. D., and Doctor Turner discussed Hypogonadism, Infertility, Sexual Precocity, The Use of Androgen Therapy.

## Deaths

JOSEPH M. THURINGER, M.D.  
1886-1959

Joseph M. Thuringer, M.D., 73, for 31 years a member of the Faculty of the University of Oklahoma School of Medicine, died October 28 in Fayetteville, Arkansas.

Born in Switzerland, Doctor Thuringer received his M.D. from Creighton University in 1911 and joined the OU Medical Faculty in 1921. He was professor of Histology and Embryology. Doctor Thuringer moved to Fayetteville nine years ago and for several years served at Pathologist at the Veterans Administration Hospital there.

In 1956 Doctor Thuringer was presented the "Professor Emeritus of the Year" award of the Alumni Association of the University of Oklahoma School of Medicine.

CHARLES G. OAKES, M.D.  
1908-1959

Charles G. Oakes, M.D., Sapulpa physician, died in Tulsa, September 25, 1959.

A native of Batesville, Arkansas, Doctor Oakes graduated from the University of Kansas Medical School in 1934.

After three years of practice in Hutchinson, Kansas, Doctor Oakes, a General Practitioner, established his practice in Sapulpa.

### AMERICAN MEDICAL ASSOCIATION

### 13th Clinical Meeting

in

DALLAS

December 1-4, 1959

For detailed information, write to—

Convention Services, 535 N. Dearborn Street,  
Chicago 10, Illinois



# Auxiliary News

## Best-Sellers

*How to Plan Programs and Influence Members* would be at the top of the best-seller list for Program Chairmen and Presidents of Auxiliary. Many excellent ideas and stimulating programs are introduced to State Presidents during National Fall Conference held annually at Chicago in October.

But—by the time State Fall Conferences can be held, many county year books and annual programs have long gone to press. Conferences at State level are valuable, in that they can strengthen projects already undertaken, bringing State and County Officers and Chairmen together for discussion and evaluation. Oklahoma held its Fall Conference October 26 at the State Medical Office.

## Advice to Lovelorn

(Counties, that is!) This was the subject of the Program following the Open Board Meeting and Business Meeting at which Mrs. Clifford M. Bassett presided.

Mrs. James P. Luton, State Program and Health Chairman, conducted the clever "Advice to Lovelorn Counties" panel, with officers and chairmen acting as guest editors. Discussion in the Round followed, which covered organizational and functional questions submitted from various counties.

## The Informer

One fine way to keep your Auxiliary well-informed and up-to-date is by careful reading of *The Bulletin*. Few publications of this type can match *The Bulletin* in content, make-up, and consistently good coverage. We urge you to subscribe to it and be convinced.

Besides containing articles of current interest to every officer and chairman in Auxiliary, two contributions in the September

issue (it is published four times a year)—are especially worthwhile: *Talking to Congressmen Back Home*, by Aubrey D. Gates, Director of Field Service Division, AMA; and *Freedom Needs No Apology*, by Doctor George M. Fister, Chairman of the AMA Council of Legislative Activities.

If you need understanding or procedure for planning programs that will be of value to your community, now is the time to start. Quoting from Doctor Fister: "I also urge you to act in the field of federal legislation through other organizations of which you are members. . . . The active support of many groups is needed if the time of permitting government to provide all our needs is ever to be stopped." One women's group, not affiliated with the medical profession, recently issued invitations to the presidents of many organizations in that county. Each guest-president was welcomed and asked to explain the purpose of her own group. Many explained current projects and regular activities.

Then the president of the hostesses explained the purpose of our meeting—a desire of their members to meet and find out what others were hoping to accomplish. With positive sincerity, the president outlined their state and national set-up, total membership, and common bonds. One statement was particularly impressive, in part: that their group realized that their individual freedoms, while helped in part by federal aid in emergency, were also threatened by being smothered and eventually completely eliminated.

Discover in your own community these "sisters under the skin"—there are many who still feel that "*Freedom Needs No Apology*." Become acquainted with them and work with them during the year, and obviously—years—that lie ahead.

# PHYSICIAN PLACEMENT

## Dermatology

Thomas E. Slimp, M.D., 323 West Livingston Place, Metairie, Louisiana, age 42, married, Syracuse Medical School, 1950, board certified January 1, 1960. No military obligations, available January 1, 1960.

Gordon Harold Ekblad, M.D., Field Medical Service School, Camp Pendleton, California, 53, married, University of Minnesota, 1930, available January 1960.

## General Practice

Donold D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, Oklahoma University School of Medicine, 1958, no military obligations, available immediately.

Johnny Bill Delashaw, U.S.P.H.S. Hospital, Wyman Park Drive and 31st Street, Baltimore 11, Maryland, age 27, married, University of Texas Medical Branch, 1959, available July 1960.

D. H. Bessesen, M.D., Grand Canyon Hospital, Grand Canyon, Arizona, age 61, married, University of Minnesota, interested University Health Service, available October 1, 1959.

Sherman Allen Hope, M.D., 1105 Yale Ave., Panama City, Florida, PO 3-6656, age 27, married, University of Oklahoma School of Medicine, 1957, available July 1960.

Paul J. Vega, M.D., 6070 Orleans Ave., New Orleans, Louisiana, age 26, married, Louisiana State University, 1956, no military obligations, available now.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, Tulane, 1943, veteran, has interest in teaching, availability date depends on situation.

## Internal Medicine

Richard I. Hochman, M.D., 37, Badger Road, Annapolis, Maryland, 31, married, New York University, 1952, available October 1, 1960.

Albert D. Roberts, Jr., M.D., 4333 Colgate, Dallas, Texas, 29, married, Southwestern Medical School, Veteran, available July 1959.

Van B. Saye, Jr., M.D., 1230 Brockenbraugh Court, Metairie, Louisiana, age 28, married, Medical College of Georgia, 1954, Air Force Reserve, available July 1, 1960.

## Locum Tenens

Arnold Giesbrecht, M.D., Hallock, Minnesota, age 34, married, graduate Winnipeg, Manitoba, 1957, prefers suburban or locality close to cities.

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for one week, available after July 1, 1959.

James D. Green, M.D., second year resident in Internal Medicine at St. John's Tulsa, desires one year of Internal Medicine practice before taking third year of training. Prefers clinic in city of 50,000 or greater population.

## Obstetrics and Gynecology

Lynn W. Abshire, M.D., 708 N.E. 14th, Oklahoma City, age 31, married, University of Oklahoma School of Medicine, 1956, American College of OB-GYN, no military obligations, available July 1, 1960.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, University of Texas, 1953, board qualified, veteran, available in July 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, University of Minnesota, 1955, board eligible upon completion of fellowship, veteran, available July 1, 1959.

David H. Holmes, M.D., 1017 Grovena Drive, St. Louis, Missouri, 37, married, Washington University, St. Louis, Veteran, available July 1, 1960.

Nejdat Mulla, M.D., 1110 Belmont Avenue, Youngstown, Ohio, age 36, married, University of Geneva, Switzerland, 1952, American College of OB-GYN, not eligible military service, available July 1, 1960.

Harold G. Ray, M.D., 212 Darien Place, Box 503, Balboa Heights, Canal Zone, age 28, married, University Arkansas School of Medicine, 1955, now in active reserve, available July 1, 1960.

Alvon C. Winegar, M.D., 1940 Michigan, Benton Harbor, Michigan, age 41, married, Wayne University, 1942, no military obligation, available early 1960.

## Pediatrics

H. M. McClintock, M.D., 5712 St. John St., Kansas City, Missouri, 29, married, Baylor University, 1955, veteran, available December 1960.

## Surgery

(Name on Request) 32 years old, married, Tulane, 1952, veteran, board eligible.

Johnson P. Graves, M.D., Box 142, Pulaski Heights Station, Little Rock, Arkansas, age 36, married, Arkansas School of Medicine, 1950, board eligible, no military obligations, available Fall 1959.

Olin O. Williams, Jr., M.D., 3768 Alma Drive, Memphis, Tennessee, 29, married, University of Tennessee, veteran, available January 1962.

## Urology

Charles Lee Reynolds, Jr., M.D., 5012 Rockport Drive, Dallas, Texas, age 32, Southwestern Medical College, Dallas, 1949, board eligible, married, no military obligations, available July 15, 1960.

Alex Grossman, M.D., V.A. Center, Temple, Texas, 42, married, University of Texas, 1951, board certified, veteran, available now.

Herbert Sohn, M.D., 2010 Cliffview Road, Cleveland, Ohio, 32, married, Chicago Medical School, 1955, veteran, available July 1960.

25 YEARS  
AGO



Articles published in *The Journal* of the Oklahoma State Medical Association, November, 1934.

### THE NEURASTHENIC PATIENT

S. C. Shepard, M.D.,  
Frank J. Nelson, M.D., Tulsa

During the past few years, with the trend of medicine directed into the more highly specialized fields, the study of the patient as a whole has become almost extinct. Patients are shunted from one doctor to another in search of some obscure cause of their troubles. No one of those consulted seems to assume the responsibility or to make a close study of that individual. When no definite trouble is discovered for which a cure might be effected, or the patient has had first one then another operation without relief, and is finally dubbed a "damned neuro," is it any wonder that he begins to lose confidence in the profession of medicine, or at least in some of those who practice it? We are all guilty of mistakes, but that is no reason why we should not profit by them, and upon the next occasion give more consideration and study to each individual in order to prevent wrong judgments or erroneous diagnoses.

We hear a great deal about the rise to prominence of the various cults, nostrums, and the increasing use of patent medicines. A great deal has been said about

legislation to control them, but that is only a make-shift, temporary relief. The most important thing is for all of us to do more real work in studying our patients, to keep up with the more recent advances in medicine and to do less talking about what the other fellow is doing. This constructive procedure will do more to restore the waning confidence of the public than can well be imagined.

The treatment of emotionally unstable patients is not easy. In the words of Noyes, "our theory of psychopathology is more highly developed than our technique of treatment." Each case offers its own particular problem, on the merits of which treatment should be undertaken.

In the first place we must realize that we are dealing with a human patient who has a mind and a personality not divorced from his physical being, and that his symptoms are due to unconscious conflicts and emotions.

It is necessary to win his confidence. This is perhaps most ably accomplished by and during frequent contacts occurring in the course of a thorough physical examination which at the same time permits more detailed study of the patient's personality and serves as the basis of later convincing the patient that his disease is not of an organic nature.

By education and explanation this patient must be made to understand the relationship of unconscious mental processes to somatic symptoms, and that his condition is not of an "organic nature." This is very difficult and the accomplishment of it is perhaps more of an art than a science, and depends to a great extent upon the personality of the physician and the susceptibility and education of the patient. On the surface the patient seems to see the problem but many are unable to understand it sufficiently to gain much practical value or relief.



# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER POSTGRADUATE PROGRAM\* Individual Postgraduate Courses

BASIC ELECTROCARDIOGRAPHY—February 29 through March 5.

OPHTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 3 and 4.

OBSTETRICS-GYNECOLOGY SYMPOSIUM—March 5.

ADRENAL STEROIDS—March 24, 25, and 26. (Third Oklahoma Colloquy on advances in Medicine.)

ORTHOPEDIC SYMPOSIUM—April 22 and 23 (this date is tentative).

CARCINOMA OF THE SKIN—May 6 and 7. (Sixth Annual Combined Surgery, Radiology, Pathology Symposium.)

OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—Date to be determined.

## SERIAL POSTGRADUATE COURSE

Postgraduate Division

Oklahoma City, Oklahoma  
1959-1960

Wednesday Short Courses

3:30 to 8:30 p.m.

- |         |   |
|---------|---|
| Dec. 9  | Renal Diseases in Childhood   |
| Jan. 13 | Carl Puckett Memorial Lecture and Infectious Diseases Symposium                                 |
| Feb. 10 | Rehabilitation of the Cardiac Patient<br>Guest Lecturer: William Tucker, M.D., Washington, D.C. |
| Mar. 9  | C. B. Taylor Lectureship and Urology Symposium—Guest Lecturer to be announced                   |
| Apr. 13 | Anesthesia for the Part-time Anesthetist  |
| May 11  | Neurological Diseases in Childhood  |
| June 8  | Surgery   |

\*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

## 6th ANNUAL CANCER SYMPOSIUM

December 5, 1959

Skirvin Hotel

Oklahoma City

The 6th Annual Cancer Symposium, American Cancer Society, Oklahoma Division, will be held at the Skirvin Hotel, December 5, 1959. Subject of the meeting will be "Cancer of the Breast."

## THE UNIVERSITY OF TEXAS POSTGRADUATE SCHOOL OF MEDICINE

Course in Cardiology

December 7-11, 1959

Texas Medical Center

Houston, Texas

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959 will be Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London). The guest lecturer from London will present a course in cardiology at the Texas Medical Center December 7-11.

For further information write to Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

## AMERICAN COLLEGE OF ALLERGISTS

Graduate Instructional Course and Annual Congress

February 28-March 4, 1960

The Americana Hotel

Bal Harbor

Miami Beach, Florida

The American College of Allergists will hold a Graduate Instructional Course and Annual Congress February 28 to March 4, 1960 at the Americana Hotel, Bal Harbor, Miami Beach, Florida. For further information, contact John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

## THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

March 7-10, 1960

Roosevelt Hotel

New Orleans, Louisiana

The twenty-third annual meeting of The New Orleans Graduate Medical Assembly will be held March 7-10, 1960 in New Orleans. Complete details may be obtained by writing to Mannie D. Paine, Jr., M.D., Secretary, The New Orleans Graduate Medical Assembly, 1430 Tulane Avenue, New Orleans 12, Louisiana.

## MISCELLANEOUS ADVERTISEMENTS

17 BED hospital, clinic and equipment for sale. Prefer to sell all to one buyer in attractive package offer, but will consider other offers. Equipment includes X-ray, fluoroscope, Medco Sonalator, BMR, diathermy, etc. In settling estate of Charles W. Ohl, M.D., facilities and equipment will be sold at considerably less than original cost, and time payments may be arranged. Contact Walt Allen, Co-Executor, 116 North 4th Street, Chickasha, Oklahoma.

**WANTED:** General Practitioner—Five man established group. Prefer locum tenens for one year. Will meet competitive salary requirements for qualified man. Contact H. B. Landholt, Business Manager, Physicians & Surgeons Clinic, Box 711, Holdenville, Oklahoma.

**FOR SALE:** \$40,000 per year General Practice. 14 room completely equipped clinic. County seat town of 4,000 with new 40 bed hospital. \$5,000 will handle. Write Key J, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

**PHYSICIANS WANTED:** Qualified Physicians needed to work with psychiatric patients in 2,400 bed hospital near Tulsa; salary range \$9,180 to \$12,120; if Board Certified \$11,700 to \$15,540. Citizenship required. Vacationland for fishing, boating, other outdoor sports. Write for other particulars, Eastern State Hospital, Vinita, Oklahoma.

**FOR SALE:** Worden walnut consultation room furniture, new condition. Contact W. P. Jeter, M.D., 912 S.W. 50th, ME 2-1556, Oklahoma City.

**BARGAINS**—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-Ray Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.

Complimentary space available to members for three consecutive months. For non-members, the rate is \$5.00 each month for each inch of copy or fraction thereof.

**INDUSTRIAL PHYSICIAN,** Oklahoma City, covering 2,000 employees, maximum salary \$12,500 depending on experience and training. Write Key G, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Shartel Station, Oklahoma City, Oklahoma.

**FOR SALE:** McKesson Waterless Basal Metabolism Machine approximately 4 to 5 years old. In good condition. Complete with masks, stand and oxygen tank. Price \$200.00. Write Key H, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

**PHYSICIAN NEEDED** in Weleetka, Oklahoma; a city with population of 1500 and trade territory of 3000; Clinic available; community will remodel building to suit physician and offer other cooperation in the establishment of a practice; New hospital being built within 10 minutes from clinic. Contact: Bob Carroll, Cashier, State National Bank; Phone Sunset 6-2311.

**WANTED:** Surgeon to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

*to your good health -*  
**HOT SPRINGS**  
 NATIONAL PARK  
 ARKANSAS

\* World-famous natural thermal waters—only Spa in U.S.A. under regulation of the Department of the Interior.



*Arlington*  
**HOTEL & BATHS**

Renew your health at one of the South's finest resort hotels! Guest can go directly from room in robe and slippers to our own Bath House located within hotel. Bath House under regulation of the Department of the Interior.

R. E. McEachin, Gen. Mgr.



All sports available — wonderful fishing and golf!

560 AIR-CONDITIONED  
Outside Rooms



1½ Grs. Ea.  
FLAVORED

## Living up to a family tradition

There are probably certain medications which are special favorites of yours, medications in which you have a particular confidence.

Physicians, through ever increasing recommendation, have long demonstrated their confidence in the efficacy, potency and purity of Bayer Aspirin, the world's first aspirin.

And the same manufacturing skill, the same 106 ingredient and product tests, the same exclusive processes which contribute to the superiority of Bayer Aspirin set the standards of excellence for Bayer Aspirin for Children.

You can depend on Bayer Aspirin for Children for it has been conscientiously formulated to be the best tasting aspirin ever made and to live up to the Bayer family tradition of providing the finest aspirin the world has ever known.

Bayer Aspirin for Children—1½ grain flavored tablets—Supplied in bottles of 50.

- We welcome your requests for samples on Bayer Aspirin and Flavored Bayer Aspirin for Children.

New  
Tamper-Proof  
Cap



THE BAYER COMPANY, DIVISION OF STERLING DRUG INC., 1450 BROADWAY, NEW YORK 18, N. Y.



## **Fluorescent Microscopy— A New Aid in Diagnostic Laboratory Medicine**

Although the technique of fluorescent microscopy is not new, recent laboratory applications of the method have revived it as one of the most exciting and promising techniques in medicine today. New uses are described in practically every journal including this issue of *The Journal*\* and for this reason a brief description of the method with mention of present day tests and future uses might be helpful to the busy clinician.

Fluorescent microscopy is based on the principle of "excitation" of certain fluorescent chemicals by exposing them to light rays of a particular wave length. The term "fluorescent" means that the substance has the ability to emit light rays after exposure to other light rays. The emitted rays are visible and they are longer than the absorbed rays. Hence, if we direct invisible (ultra-violet) rays through tissue, smears, or other specimens which have been exposed to a fluorescent dye, any particle on the slide that becomes stained or combines with the dye will "fluoresce" or emit visible light. Therefore, it will stand out as a focus of light in a dark background. Different fluorescent dyes for specific substances are being reported. When a slide is covered with biologic material and is exposed to the dye, only the specific substance will combine with the dye and become fluorescent. The excess of fluorescent dye is then washed off the slide. The slide is examined under the microscope with an ultra-violet light source ("fluorescent microscope"). Foci of fluorescence appearing on the slide would confirm the presence of the specific substance in question. Absence of fluorescence would indicate that all the dye was removed in the wash and therefore, no specific substance was present.

What are the applications? These are almost innumerable and certainly very inter-

esting. The huge field of antigen-antibody reactions offers us excellent possibilities, not only for research, but practical laboratory applications. Our present laboratory methods in allergy, hypersensitivity, and immunology are fairly crude when compared with the methods of fluorescent microscopy. In the present methods we must depend on combination of the antigens and the antibodies in a test tube in sufficient quantities to form a particle that will either precipitate, agglutinate, or combine with complement. (These are the best present-day methods.) Almost ideal conditions must be established for these methods to work in certain diseases. In virus diseases the antigens are too small to be seen. In certain tests, the antigen used is not even composed of the infectious agent, but is an extract of some other tissue which has been demonstrated to react with the antibody. (Serologic test of syphilis.) These tests vary in sensitivity and specificity. The complement fixation test is probably the best of this group; and it is time consuming and expensive. The fluorescent antibody technique, when properly controlled, has the inherent specificity of an immuno-chemical reaction. In essence, the method is as follows:

- 1) Specific antibody is developed by immunization of a suitable laboratory animal.
- 2) The specific antibody is extracted and concentrated by recognized chemical methods.
- 3) The fluorescent dye (usually fluorescein) is chemically combined with the antibody.
- 4) The biologic material which is suspected of containing the antigen in question is placed on a slide and is then exposed to the fluorescent antibody solution. The slide is washed to remove excess fluorescent antibody. Only antibody that is combined with antigen remains on the slide. The slide is then examined under the fluorescent microscope for the presence or absence of fluorescence and hence, the presence or absence of antigen is demonstrated.

An actual example demonstrates the relative simplicity. Assume we have a patient with questionable influenza. (Influenza is used as an example because virus diseases, in general, are most difficult to diagnose specifically with our present day methods, and it is anticipated that the fluorescent microscopic techniques will adapt themselves admirably to the diagnosis of virus diseases.) A smear is made of the secretions of the nasopharynx (the localization of the virus). The smear is flooded with solutions containing fluorescent anti-influenza antibody. The smear is washed and examined; fluorescence confirms the diagnosis and the absence of fluorescence disproves it. The test is completed in two hours or less. If an attempt were made to culture the virus, or if efforts were made to demonstrate an antibody titer, several weeks would be required for diagnosis. Up to the present time, approximately 20 different viral antigens have been localized in infected cells. The method also lends itself to nearly every other form of antigen and antibody identification, including various hypersensitivity antibodies in tissue, and identification of fungi, bacteria, and Rickettsia.

Fluorescent microscopy is also finding use in the diagnosis of cancer. The following principles are utilized:

- 1) The two types of nucleic acid are present in the cells, (a) deoxyribose nucleic acid. (DNA), which is the characteristic chemical component of the chromatin of the nucleus and (b) ribose nucleic acid (RNA), localized mainly in the cytoplasm and nucleolus.
- 2) A high amount of RNA is generally characteristic of the cells showing high protein synthesis, including malignant cells.
- 3) The fluorescent dye, acridine reddish orange (AO), causes green fluorescence with DNA and red fluorescence with RNA. Hence, the malignant cells are distinguished by their red fluorescence. This method has been utilized in screening cervical smears for cancer cells. It has also been used for staining tissue.

Many technical problems must be solved before fluorescent microscopy can be used routinely in the laboratory. At the present

time, fluorescent antibodies are not available commercially. Each laboratory must prepare its own antibody solutions. This is a difficult and time consuming procedure, and few laboratories are capable of doing it well. The microscopic apparatus is expensive and few laboratories own it. Ultra-violet light is dangerous to the skin and eyes, and personnel must be trained in the correct use of the fluorescent microscope. However, as is true of all valuable technical procedures, these and other problems will be solved and the cost will be reduced. When this occurs numerous new developments and extension of present research techniques may be expected in fluorescent microscopy. These might include some of the following:

- 1) Rapid and inexpensive screening of large numbers of cytologic smears with reduction in the cost to the patient.
- 2) Application of the cytologic method to areas of cancer diagnosis where it is not used due to the degeneration of cancer cells or inability of the cytologist to identify the malignant cells because of their minimal changes (GI tract, prostatic secretions, urine sediment.)
- 3) The pathologist may utilize the technique in trying to specifically diagnose malignant cells of an unusual nature ("lateral aberrant thyroid," bronchial "adenoma," etc.) by chemical changes when the histological changes are equivocal.
- 4) Identification of specific infectious agents will be done rapidly and accurately in epidemics as well as on routine sporadic cases.
- 5) The method will be used for ruling out or specifically identifying infectious agents in tissue.
- 6) It will be used for the localization of antibody production in cells.
- 7) It can be used for localization of specific protein substances in the body.
- 8) The technique may be used to prove the presence of antigen-antibody reaction in certain diseases and demonstrate its specific localization. This will be helpful in establishing the etiology of certain diseases that have been suspected of being allergic in origin, but which have not been proven to be by our present methods.—HTR.



## Contraindications for Radical Mastectomy

Conventional radical mastectomy is the procedure of choice for treatment of carcinoma of the breast. The malignancy is curable in a significant percentage of cases, and the operation is attended with low morbidity and mortality. In the presence of evidence that the disease has spread beyond the confines of surgical removal, Roentgen therapy and/or hormonal therapy should be employed to achieve maximum palliation.

Considerable difficulty lies in accurate evaluation of patients in whom cancer of the breast is present without evidence of distant metastasis but in whom there are local signs of advanced disease. If these signs are ignored and radical operation performed, the operation will fail to alleviate the symptom of the patient and probably hastens her demise.

The criteria of Haagensen and Stout<sup>1</sup> for categorical inoperability were based upon a classical study of results of the treatment of carcinoma of the breast at Presbyterian Hospital, New York, in the years 1915 to 1934. These were revised slightly after a similar study in the same institution in the years 1935 to 1942. Stated briefly, they are:

- (1) Extensive edema over the breast
- (2) Edema of the arm
- (3) Satellite nodules in the skin over the breast
- (4) Intercostal or parasternal nodules
- (5) Proved supraclavicular metastasis
- (6) Inflammatory carcinoma of the breast
- (7) Distant metastasis to the lung, skeleton, etc.
- (8) Two or more of the following:
  - (a) Ulceration of the skin
  - (b) Local edema, less than one-third of the breast surface
  - (c) Fixation of the tumor to the chest wall
  - (d) Large axillary nodes with fixation

These criteria have stood the test of time and their usefulness has been proved most strikingly by those who choose to ignore them.

It is noteworthy that of age, neither youthfulness nor senility, contraindicates a sur-

gical attempt for a cure. It is encouraging that pregnancy and lactation have been dropped from the list of contraindications though certainly the confluence of these circumstances lessens the probability of survival. The engorged breast of gestation and lactation make correct evaluation of a tumor mass difficult both for the patient and her attending physician and probably accounts for the delay in diagnosis and treatment.

Biological predeterminism is an interesting concept which implies that pathologically identical carcinomas of the breast may behave in a strikingly different manner. One malignancy will pursue a fulminating lethal course not favorably altered by operation at any time from its inception. Other breast cancers are more kindly in that their host relationship is such that they may be cured even late in their life history by simple surgical means. Another group of breast cancers comprises the target for which classical radical breast surgery has been aimed in the hope that early diagnosis of the lesion and adequate surgical removal may truly increase their curability.

Stated differently, this disillusioning and disturbing theory would show that all small breast cancers are not early and curable and that all large breast cancers are not late and incurable.

The validity of this theory is not in question but believe whole heartedly that its proof is best expressed in the difference in philosophy of individual surgeons. Depending upon ones personal results—which in turn would be a function of the distribution of biologically predetermined types coming into ones practice—one might (1) remain as aggressive in surgical therapy as a first year surgical resident or (2) be ready to abandon the scalpel altogether in favor of some super-voltage machine or (3) write medical articles in a lay magazine warning of the dangers of operation in the treatment of cancers.

Until there is some simple means of identifying the small but incurable lesion and avoiding non-beneficial radical operation, we should continue to use the most effective weapon at our disposal for treating cancer of the breast, that is the radical mastectomy. *J.L.S.*

1. Haagensen, C. D. and Stout, A. P., Carcinoma of the Breast, *Annals of Surgery*, 134: 151, 1951.



## Extracervical Cancer Detection by Fluorescent Cytology— A Preliminary Report

THOUGH not the first investigator to attempt cancer diagnosis through cytologic methods, Papanicolaou<sup>1</sup> in 1928 demonstrated the feasibility of cytologic cancer detection. In the ensuing years he perfected the technique into the form that is universally employed today.<sup>2</sup> The most intense study has been centered on the uterine cervix and from this concerted effort there has resulted a radical modification in the concept of cervical carcinoma. The mean age for detection of cervical carcinoma has been lowered to 35 years, more than a decade younger than was previously possible. The death rate from this neoplasm has been lowered over 90 per cent in areas employing mass screening programs. Cervical carcinoma may also be anticipated in advance of its occurrence by certain cytologic criteria.<sup>3</sup> Any of these phenomena considered alone conclusively proves the value of cytologic studies.

Other areas of the anatomy have stubbornly resisted the cytologic breakthrough. Smears and cell blocks stained by conventional techniques frequently fail to give sufficient morphologic information in early cases to enable conclusive diagnosis even in expert hands. The diagnosis of early malignancies of the central nervous system, respiratory tree, salivary glands, gastrointestinal tract, genitourinary system (other than the cervix), skin, mammary glands, and lymphatics and advanced pleural and peritoneal metastases is usually made by biopsy rather

DeWITT T. HUNTER, M.D.

D. NELLO BROWN, M.D.

ROBERT F. REDMOND, M.D.

DeWitt T. Hunter, M.D., graduated from the University of Maryland School of Medicine in 1952. He limits his practice to his specialty, pathology. He is certified by the American Board of Pathology and a member of the American College of Pathology.

D. Nello Brown, M.D., a graduate of the University of Oklahoma School of Medicine in 1945, limits his practice to his specialty, internal medicine. He is now visiting lecturer in Clinical Pathology and instructor in Medicine at the University Hospitals, Oklahoma City. Doctor Brown is a member of the Society of Nuclear Medicine.

Robert F. Redmond, M.D., is a graduate of the University of Oklahoma School of Medicine where he is now Assistant Professor of Pharmacology.

than by cytology. The explanation for the inadequacy of the cytologic method in extracervical regions is the difficulty encountered in differentiating with certainty a bizarre benign cell from a well differentiated malignant cell. Cellular appearance alone in the absence of architectural change is not enough to enable diagnosis in most instances. Some fundamental difference between benign and malignant cells had to be selected and exploited to enable differentiation. Special stains examined through conventional light

microscopes have been used extensively without notable success.<sup>4</sup>

von Bertalanffy<sup>5</sup> in 1956 succeeded in unmasking malignant change by an ingenious fluorescent analysis of intracellular ribonucleic acid (RNA) content. It had long been known that benign cells contained little RNA whereas malignant cells, even during resting and early degenerating phases contained considerably larger amounts.<sup>4</sup> Exploiting this characteristic through ultraviolet microscopy and fluorochrome dyes, benign cells, rich in deoxyribonucleic acid (DNA) appeared greenish; while malignant cells with increased RNA content fluoresced reddish orange. Of the various fluorochrome dyes investigated, acridine orange (hereafter referred to as "AO") gives the best results. Other investigators more recently have confirmed these observations of von Bertalanffy.<sup>6,7</sup> The AO method is now used routinely at Walter Reed Hospital. Although the initial work has thus far revolved around the cervix, this method of specifically labeling malignant cells has opened the way to earlier and more accurate diagnosis in other areas of the body.

#### Materials and Methods

This preliminary study consisted of preparations made from over 200 patients. The specimens were collected and prepared in accordance with methods outlined by Papanicolaou<sup>2</sup> or Solomon.<sup>8</sup> Every specimen was studied by the AO fluorescent technique as well as the Papanicolaou (Pap) technique except for hematologic specimens which were stained with Wright's technique. A fluorescent classification was given prior to study by the Papanicolaou method. In instances of any classification of malignancy by either technique, a biopsy was performed.

Specimens which were collected by superficial scraping or which consisted of cell-rich secretions, except those from the cervix which were intrinsically tenacious, were smeared directly on albuminized slides. When a specimen was fluid and cell-poor such as cavity fluids and urine, 15 to 60 cubic centimeters, depending on the amount of sediment, were centrifuged. It is important to process the specimen immediately without fixation. Cavity fluids frequently

contain protein which will coagulate in the fixative and bind the cells. Successive portions of the fluid were added to the same centrifuge tube after decanting the supernatant material. Following the final decanting of the specimen fluid, the sides of the tube were washed down with normal saline to resuspend the cells, and the tube centrifuged once again. It has been shown<sup>8</sup> that the final washing step is important in that large numbers of malignant cells may remain on the side of the tube. The saline supernate was then decanted and the sediment smeared on albuminized slides. The slide was fixed in ether alcohol without delay. After fixation for 30 to 60 minutes, the slide may either be left in the fixative, or removed and dried. In the past, several objections have been raised against allowing the material to dry even after fixation, but several methods have been devised to prevent any deleterious effects, and the rehydration method of Nieburgs<sup>9</sup> has proven suitable for study of slides after drying in room air for periods of several weeks.

Staining for the fluorescent method was performed in accordance with the method cited previously.<sup>4</sup> The hydrated slide was immersed in 0.01 per cent Acridine Orange (AO) followed by two rinses in M/15 Phosphate buffer, and an interval in M/10 Calcium Chloride to enhance differentiation. The preparation was immediately scanned microscopically using an ultraviolet light source and appropriate filters. Several highly satisfactory apparatus are available commercially. The Papanicolaou technique employed was of the conventional type routinely employed in various laboratories today.<sup>2</sup>

#### Case Reports

TGS, 56-Cau-M, noted painless hematuria without other symptoms. Cytologic examination by the Papanicolaou method without concentration by the method suggested above was unsatisfactory because of lack of cellularity. Routine urinalysis showed gross hematuria. Urologic consultation was advised, but since hematuria did not recur, the patient did not seek further care until approximately two months later when hematuria was again noted. Another preparation was made employing the improved concen-



tration method. This was read as Class V by the AO method (figure 8), but only Class III (suspicious) by the Papanicolaou technique. The patient was hospitalized and three small papillomata were removed. Pathologic diagnosis: Transitional cell carcinoma, urinary bladder.

JHS, 59-Cau-M, was hospitalized with a diagnosis of Laennec's cirrhosis, right hydrocele, congestive heart failure, and arteriosclerotic heart disease with coronary insufficiency. An abdominal paracentesis was performed to relieve the ascites. The ascitic fluid prepared as described disclosed large numbers of malignant cells, Class V, by the AO technique (figure 9) and occasional cells identified as malignant, Class IV, by the papanicolaou stain (figure 10). After consultation, an abdominal exploration was performed and a liver biopsy taken. The patient subsequently expired from a massive pulmonary embolus. An autopsy was performed. Anatomic diagnosis: Primary carcinoma, liver.

HHS, 68-Cau-M, had one episode of hematuria which was painless and unassociated with other symptoms. He was seen several months later by a urologist for a check-up and gave a history of the single episode described above. The routine examination of the urine revealed only microscopic hematuria. A specimen was processed as previously outlined by the urologist in his office. By the AO method the specimen was designated Class V (figure 3). The Papanicolaou smear (figure 4) confirmed the impression when prepared by the same concentration method. Two papillomata were excised cytoscopically. Pathologic diagnosis: Transitional cell carcinoma, urinary bladder.

NC, 60-Cau-F, had a left radical mastectomy in 1952. She had consulted her family physician for symptoms described as those of a cold. She failed to improve after medication and sought the advice of an internist who found a left pleural effusion. She was hospitalized and a thoracentesis was performed. A portion of the fluid was sent to the laboratory for cytologic study, and another portion prepared by the concentration method was examined by both AO and Pa-

panicolaou methods. The routine preparation was reported negative, but the AO and Papanicolaou methods on the concentrated material were both reported as positive, Class IV. By the Papanicolaou technique the possibility of a lymphoma was entertained. A supraclavicular node was removed for biopsy. Pathologic diagnosis: Metastatic carcinoma with sarcoid reaction.

TJ, 60-Cau-M, presented the complaint of a 2 by 3 mm irritating lesion on the dorsum of the neck. This had been treated with various creams and ointments without relief. All treatment was discontinued for a period and the lesion was scraped with a dull scalpel blade and spread on an albuminized slide. In this case the cells were separated into a thin smear with a small amount of saline and allowed to adhere to the slide by evaporation of the saline in order to avoid loss by flotation during fixation. The slide was fixed in ether-alcohol and examined cytologically. Large numbers of AO positive cells were seen (figure 5) and designated Class V, but the Papanicolaou was reported as abnormal, Class III. The lesion was excised. Pathologic diagnosis: Basal cell carcinoma (figure 6).

WY, 48-Cau-M, had persistent pulmonary symptoms and a suspicious hilar mass. Because of the progressive nature of the symptoms and a negative Papanicolaou smear of his sputum, a thoracotomy was performed and a specimen of the mediastinal lesion was removed for biopsy. Additional sputum was examined by the AO and Papanicolaou techniques and interpreted as Class V and III respectively (figure 2). This AO cytologic impression was confirmed by the biopsy report. Pathologic diagnosis: Bronchiogenic carcinoma (figure 1).

MC, 21-Cau-F, had a cervical smear taken by a gynecologist as part of a routine examination. The patient was nulliparous and had a normal appearing cervix. Both the AO and Papanicolaou methods were positive for carcinoma, Class IV (figures 15, 16A). A biopsy was performed. Pathologic diagnosis: Carcinoma of the Cervix, in situ (figure 16B).



1. Branchogenic carcinoma, poorly differentiated.

2. AO stained sputum of same case; numerous cells of this type were seen. Other staining methods yielded equivocal results.

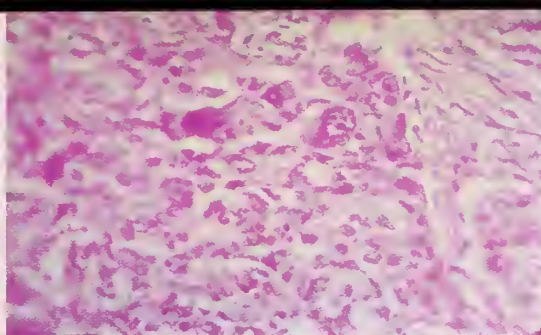


Figure 1. H & E stain x 450

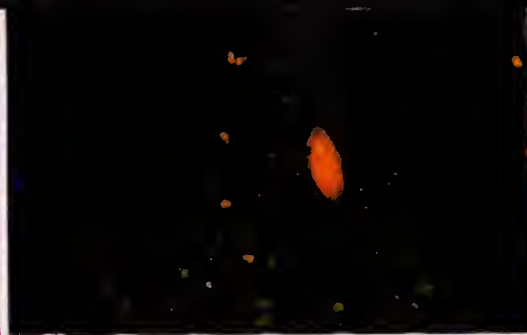


Figure 2. AO stain x 450

3. Carcinoma of bladder, urine sediment, AO stain showing striking orange-red fluorescence enabling rapid detection.

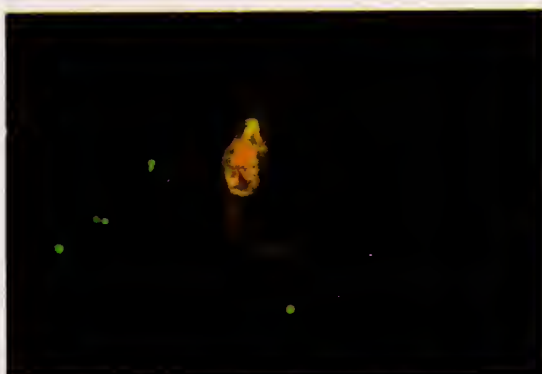


Figure 3. AO stain x 450

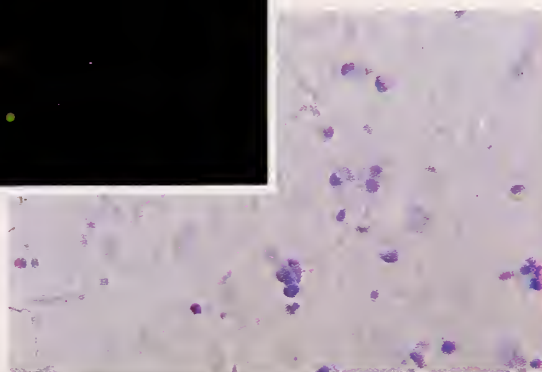


Figure 4. Papanicolaou stain x 450

4. Some cells were sufficiently abnormal to permit positive diagnosis by conventional stains.

5. Basal cell carcinoma of skin. AO stain showing bright orange degenerating malignant cells; conventional stains were unsatisfactory.

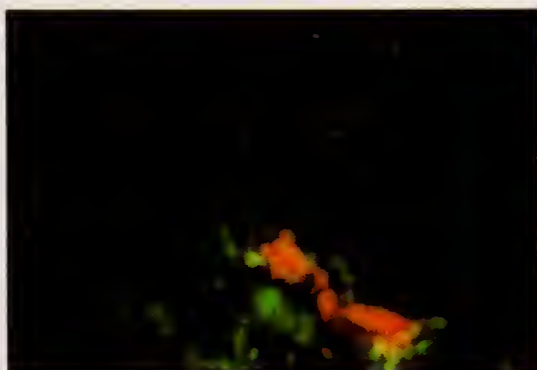


Figure 5. AO stain x 450

6. Same case, biopsy.

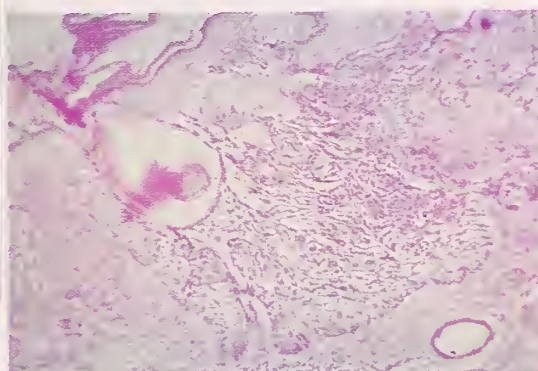


Figure 6. H & E stain x 100

7. Lymphatic leukemia, unconcentrated smear of peripheral blood. Primitive lymphocytes showing red fluorescence.



Figure 7. (left) Lymphatic leukemia x 450

Figure 8. (right) Carcinoma urinary bladder, AO stain. Pap stain of this case was class III.



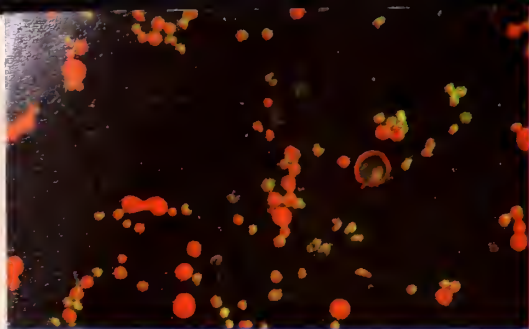


Figure 9. AO stain x 450

9. Carcinoma of liver—malignant cells in ascitic fluid.

10. Popanicolau stained preparation from same case.

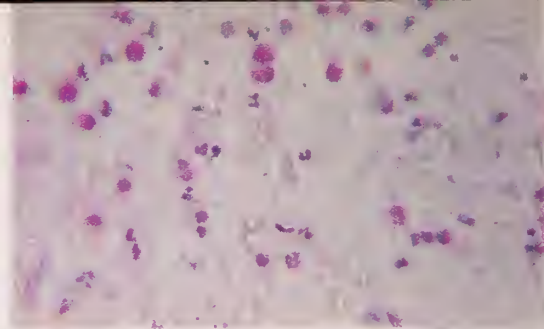


Figure 10. Pap stain x 450

11. Touch preparation from carcinoma of breast. Increased RNA content of malignant cells as indicated by intense orange fluorescence in the entire field.

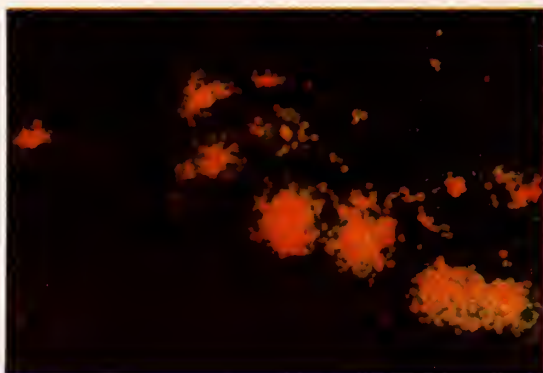


Figure 11. AO stain x 100

12. Popanicolau stained preparation from same case.

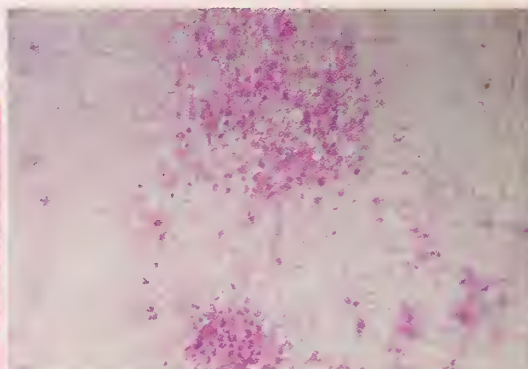


Figure 12. Pap stain x 100

13. Popanicolau stained preparation containing Trichomonads and inflammatory cells. Parasites are indicated by arrows.

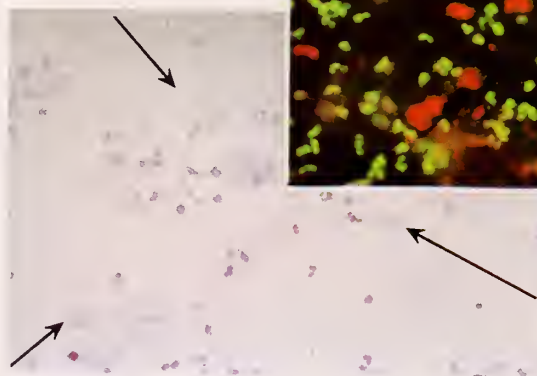


Figure 13. Pap stain x 450

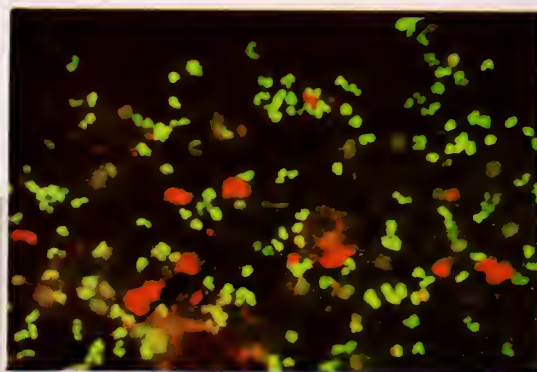
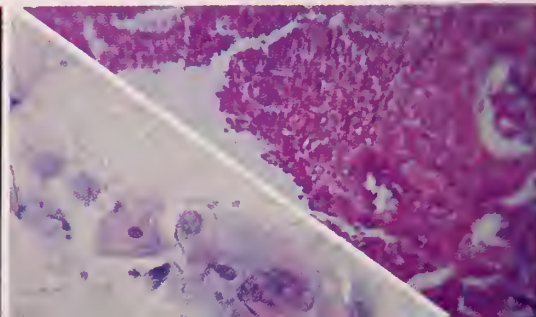
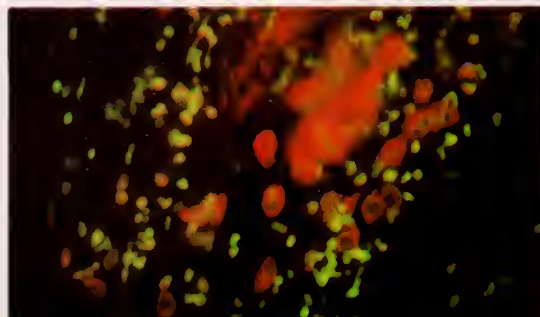


Figure 14. AO stain x 450

14. AO stained preparation from same case showing vivid red fluorescence of parasites contrasted with green inflammatory exudate.

15. & 16. Carcinoma of cervix as demonstrated by AO, Popanicolau stain, and biopsy.





## Discussion

To the present time extracervical cytologic cancer detection using conventional staining techniques has not been satisfactory. The AO fluorescent staining technique shows great promise in supplementing the purely morphological approach with a histochemical color phenomenon. Through analysis of the nucleic acid content of cells, the AO stain differentiates normal tissue from cancer tissue in a rather striking and colorful manner.

The cases cited above have confirmed the value and in some cases the superiority of the AO technique over methods heretofore available. This is especially true in the field of extracervical specimens. In addition to the high degree of sensitivity and accuracy intrinsic in the AO procedure other advantages are: (1) the method is rapid, requiring six minutes staining time vs. thirty minutes by conventional methods; (2) there is economy of expendable materials; (3) screening can be accomplished rapidly with less probability of false negative results. These and other advantages of the AO method may well provide the answer to the problems in mass screening programs for early cancer detection.

False positives with the AO techniques are occasionally encountered due to the high RNA content of some rapidly proliferating benign lesions. In these instances the Papanicolaou technique is necessary to provide a more conclusive evaluation. In all cases of malignant classification or repeated suspicious designation a specimen must be removed for biopsy for confirmation of malignancy.

The AO fluorescent technique shows promise in other fields besides tumor detection. Preliminary work in this laboratory indicates that primitive white cells contain increased RNA and fluoresce a brilliant red, while mature white cells show green fluorescence. This may afford a simple reliable means by which normal white cell constituents of the blood may be differentiated from their malignant counterparts (figure 7). It is possible that tumor cells may be identified more readily in plasma concentrates by this method than by conventional techniques.

Through their striking red fluorescence bacteria, fungi, and protozoa (figure 14) stand out vividly in smeared preparations. This may augment their detection and identification in certain body fluids or excreta. Inclusions in cytomegalic cells stand out clearly as brilliant red bodies. It has been observed in this laboratory that intracellular viral plaques will show red fluorescence.

It is established<sup>10,11</sup> that a direct correlation exists between RNA content and radiosensitivity. It is anticipated that the AO fluorescent method of tumor cell analysis may shed light on the degree of tumor sensitivity to radiation therapy.

The wider use of this technique may facilitate advances in the early diagnosis of extracervical lesions comparable to those effected by the Papanicolaou method in uterine cancer.

## Summary

Six cases of extracervical malignancy detected by a fluorochrome fluorescent technique are presented. This new method of cancer detection seems at the present time to offer greater reliability and enables earlier detection of malignancies than is realized by conventional cytologic techniques. Its application in the fields of bacteriology, mycology, virology, hematology, parasitology, and radiology are cited briefly.

*Acknowledgments:* The cost of the photoengraving of the color plates was generously supported by the Hoffman La Roche Corporation and the University of Oklahoma Medical Center.

## REFERENCES

1. Papanicolaou, G. N.: New Cancer Diagnosis, Proc. Third Race Betterment Conf. 525-534, 1928.
2. Papanicolaou, G. N. and Traut, H. F.: Diagnosis of Uterine Cancer by Vaginal Smear, Commonwealth Fund, New York, 1943.
3. Koss, L. G.: Cytologic Changes Preceding Appearance of Situ Cancer of Uterine Cervix, Cancer 8: 295-301, 1955.
4. von Bertalanffy, L., Masin, M., and Masin, F.: A New and Rapid Method for Diagnosis of Vaginal and Cervical Cancer by Fluorescence Microscopy, Cancer 11: 873-887, 1958.
5. Masin, M., von Bertalanffy, L. and Masin, F.: Use of Acridine Orange Fluorescence Technique in Exfoliative Cytology, Science 124: 1024-1025, 1956.
6. LeCover, M. and Warren, N. E.: A Rapid Method for AO Fluorescence, Am. J. Clin. Path. 29: 186-187, 1958.
7. Sussman, W.: Detection of Gynecological Cancer by Fluorescence Microscopy, Obst. and Gyn. 13: 273-277, 1959.
8. Solomon, C., Silberblatt, J. M. and Hyman, R. M.: Comparison of Dry Smear Techniques with Wet Techniques for the Cytologic Study of Urine, Am. J. Clin. Path. 27: 601-605, 1957.
9. Nieburgs, J. E.: Cytologic Techniques for Office and Clinic, Grune and Stratton, New York., 1956.
10. Gusberg, S. B., Trovelli, H. M. M., Emerson, R., and Allina, H.: Radiosensitivity Testing of Cervical Cancer, Am. J. Obst. & Gynec. 68: 1464-1471, 1954.
11. Crosby, W. H.: Personal Communication.

1219 Classen Drive, Oklahoma City 3, Oklahoma



Despite the current popularity of diuretic therapy, digitalis administration is still the most effective measure in treatment of congestive heart failure.

## Digitalis Therapy in Congestive Heart Failure

This is the fourth of a series of articles prepared for *The Journal* under the auspices of the Oklahoma Heart Association and its committee on Professional Education, emphasizing the theme of the Association for the current year.

**C**ONGESTIVE HEART FAILURE results from an imbalance between cardiac muscle strength and the work load imposed upon the heart, that is, the heart is unable to pump enough blood to supply the metabolic needs of the body. With few exceptions, the essential defect in congestive failure is a deficient cardiac output resulting from impaired myocardial function. The muscle fibers have usually been subjected to increasing tension in diastole or to excessive resistance to contraction, eventually leading to overstretching and fatigue of the myocardium and impairment of its contractility. The resulting deficiency in cardiac output triggers certain renal and hormonal mechanisms which result in the retention of sodium and water, expansion of extracellular fluid volume, edema, visceral congestion, hypoxia, etc., all of which further compromise myocardial function.<sup>1-4</sup>

Logically, the objectives of therapy in congestive failure are improvement of myocardial function and cardiac output, and reduction of the work load placed on the heart. The digitalis glycosides are the only pharmacologic agents which possess direct cardiotonic properties, and their chief thera-

### ROBERT A. JORDAN, M.D.

Robert A. Jordan, M.D., graduated from the University of Kansas School of Medicine in 1944. He is certified by the American Board of Internal Medicine and is a Fellow in the American College of Physicians.

Doctor Jordan was Assistant Professor of Medicine at the University of Kansas Medical Center from 1954 to 1958.

peutic value lies in the ability to increase a deficient cardiac output. The various other measures used in congestive failure have no direct action on cardiac muscle, but indirectly improve the clinical state by reducing the work load of the heart, e.g., physical rest, salt restriction and diuretic therapy, aspiration of large transudates, venesection, etc.

During recent years, digitalis therapy has often been neglected in favor of measures designed to mobilize and excrete extracellular fluid accumulations. In the earlier stages of congestive failure, physical rest, digitalis therapy and perhaps moderate restriction of salt intake are usually sufficient to restore compensation. Digitalis therapy alone may not be adequate in the more advanced stages of failure particularly if there is severe myocardial damage, and other measures must be instituted to aid in reduction of the work load of the heart to a degree compatible with the functional capacity of the myocardium.

## The Action of Digitalis

When therapeutic doses of digitalis are given in congestive failure, the following events occur: the ventricular rate usually slows, cardiac output improves, right atrial and peripheral venous pressures fall, pulmonary arterial diastolic pressure falls, arteriovenous oxygen difference decreases, and diuresis of salt and water occurs.<sup>5, 6</sup> It is difficult to decide which of these closely interrelated cardiac, renal and vascular phenomena are primary and which are secondary effects of digitalis activity. The present consensus is that all of these events are the result of the improved myocardial function and cardiac output induced by the direct cardiotonic action of digitalis.

In low-output failure digitalis improves myocardial contractility and increases cardiac output by increasing the force of systolic contraction;<sup>7</sup> the duration of diastole is lengthened, thus permitting greater time for myocardial rest and ventricular filling;<sup>8</sup> the ventricles empty more completely, thereby increasing stroke volume. The diastolic size of the heart is reduced by digitalis,<sup>9</sup> and since oxygen consumption is a function of initial diastolic fiber length,<sup>10</sup> the oxygen expenditure for any work performed by the heart muscle is reduced.

The biochemical effects of digitalis on the heart muscle are not entirely clear at the present time. Certain *in vitro* observations<sup>11</sup> indicate that digitalis is concentrated near the contractile elements, myosin and actin, rather than in the mitochondria which harbor the glycolytic enzymes utilized in the Krebs cycle. Therapeutic doses of digitalis have been shown to increase the ionic concentration of potassium in the muscle cell, while toxic doses of digitalis appear to cause potassium ions to be released from the cell.<sup>12</sup> According to the views of Szent-Gyorgyi,<sup>13</sup> the contractile elements of the cell, myosin and actin, are prevented from uniting by the ionic concentration of potassium in the cell. When excited by a stimulus, the cell membrane is depolarized and becomes permeable to potassium ions which are allowed to escape from the cell, thus permitting the union and subsequent spiral folding of actin and myosin. Studies

of myocardial metabolism in low-output failure reveal no deficit in oxygen utilization,<sup>14</sup> no reduction in the supply of the energy donor adenosine triphosphate (ATP),<sup>15</sup> and no change in the consumption of catabolic substrates such as lactate or pyruvate.<sup>16</sup> These observations lead to the conclusion that the essential metabolic defect in low-output failure does not lie within the phase of energy production, but rather in the lack of efficient energy utilization on the part of the overly stretched contractile elements of the heart muscle. Digitalis apparently acts directly on the contractile elements of the heart muscle. Digitalis apparently acts directly on the contractile elements of the cell, enabling them to use the normally available energy supply more efficiently, perhaps through the effects of the drug on the concentration of potassium in the cell.

Digitalis preparations possess one important extracardiac action; namely, the vagal action of small doses of these drugs in atrial fibrillation which will slow the ventricular rate. At this point exercise or atropine administration will cause exaggerated acceleration of the ventricular rate. Full therapeutic doses of digitalis slow the ventricles by directly depressing the arterioventricular conduction tissue and this effect cannot be erased by exercise or atropine. This effect is useful as an indication of full digitalization in the patient with atrial fibrillation by observing the response of the ventricular rate to exercise.<sup>17</sup> The slowing of the heart, which often occurs when digitalis is administered to the patient in congestive failure with a sinus rhythm, is apparently not the result of the vagal action or of depression of atrioventricular conduction, but is the result of the overall improvement in myocardial function. Measurable clinical improvement is often observed in such patients prior to any significant decrease in the ventricular rate. In such patients the heart rate does not serve as a reliable guide to the level of digitalis effect. Toxic doses of digitalis sometimes induce arrhythmias with rapid ventricular rates simulating atrial fibrillation or sinus tachycardia,<sup>18</sup> and further efforts to slow the heart rate with digitalis can prove to be disastrous.



Some rather characteristic electrocardiographic changes may be induced by digitalis administration: the QT interval may be shortened; a rather concave depression may appear in the RST segment often associated with inversion of the first portion of the T wave; the PR interval may be lengthened due to atrioventricular depression, and varying degrees of heart block may result from toxic doses of the drug. Excessive doses of digitalis can cause practically any of the arrhythmias from premature contractions to ventricular fibrillation. Lown and Levine have emphasized the importance of recognizing paroxysmal atrial tachycardia with varying degrees of AV block, since it is almost always caused by excessive doses of digitalis, and because the arrhythmia is often mistaken at the bedside for atrial fibrillation, which may lead the physician to give more digitalis in the hope of slowing the ventricular rate.

#### The Various Cardioactive Preparations

The cardiotonic properties of the various preparations of digitalis depend upon their content of one or more of the cardiac glycosides. All of the digitalis glycosides are structurally similar in having a steroid nucleus with a lactone ring at C-17, and a complex sugar moiety at C-3. Differences in the pharmacologic properties of the various glycosides are due to differences in the structure of the sugar group and to the nature and position of other substituent groups.<sup>19, 20</sup>

There are many commercial preparations of digitalis available under a bewildering variety of proprietary names. No useful purpose is served by the attempt to remember all of the different commercial preparations. A more rational grouping is formed by the generic classification of the cardioactive drugs. There are four naturally occurring parent substances, each containing one or more of the currently used cardiac glycosides: *Digitalis purpurea*, *Digitalis lanata*, *Strophanthus gratus* and *Strophanthus kombe*.

*Digitalis purpurea* is the only whole plant substance now used in the crude form. *Digitalis* USP consists of a mixture of natural active glycosides with inert material. Standardization is accomplished by determination

of the lethal dose in pigeons, one USP unit being equivalent to 0.1 Gm. of USP *Digitalis* Reference Standard. Commercial USP preparations must have a potency of no less than 85 per cent nor more than 120 per cent of the reference standard.

Digitoxin is derived from a glycoside of *Digitalis purpurea* by removal of a glucose. It may also be obtained from lanatoside A, which is one of the glycosides of *Digitalis lanata*, by removal of glucose and acetyl. Digitoxin USP is standardized by a chemical method which measures the content of active glycosides. This method also measures the relatively biologically inert substance gitoxin as though it were digitoxin, and significant quantities of this material may be found in many commercial preparations.

Gitalin, amorphous is derived from *Digitalis purpurea* by a special method of extraction and purification, and contains a mixture of natural glycosides. As yet there are no legal methods of standardization.

*Digitalis lanata* is the parent plant of several cardioactive substances, although it is not itself available in the crude form for clinical use.

Digilanid is a purified mixture of the three natural glycosides of *Digitalis lanata*, lanatosides A, B and C, and these substances are present in approximately the same proportions as they occur in the plant.

Lanatosides A and B are not available, as such, for clinical use.

Digitoxin is derived from lanatoside A, and acetyl digitoxin is also derived from lanatoside A by the removal of glucose, but not of acetyl.

Lanatoside C is a purified glycoside of *Digitalis lanata*. The USP products are standardized by the same method of pigeon assay as used for digitalis leaf. Digoxin, which is very similar in action to Lanatoside C, is derived from that glycoside by removal of glucose and acetyl. Standardization is accomplished by colorimetric methods, and USP Digoxin must assay to a potency of not less than 90 per cent nor more than 110 per cent of the USP Digoxin Reference Standard.



*Strophanthus gratus* and the wood of the ouabao tree are the sources of ouabain, which is prepared for intravenous use only, and is standardized by the pigeon assay method.

Strophanthin K is a mixture of three or more natural glycosides of *Strophanthus kombe*, and is standardized, according to the N. F. IX, to one-half the potency per milligram of Ouabain USP.

Acetyl strophanthidin is a recently developed synthetic preparation derived from the aglucone strophanthidin, and cannot truly be classified as a glycoside. The drug is assayed in cat units against a reference standard, and has a potency of approximately three cat units per 0.5 mg. of drug.

#### **Quantitative Differences in the Various Cardioactive Preparations**

Although the biologic effect of all cardiac glycosides are essentially alike, significant quantitative differences exist in the degree and uniformity of gastrointestinal absorption, and in the rates of onset and decline of biologic effects. These differences influence the choice of a preparation for clinical use.

Preparations of digitalis for oral administration must be adequately and uniformly absorbed from the gastrointestinal tract. The strophanthus derivatives are so poorly and erratically absorbed as to be unsuitable for oral use. Lanatoside C is absorbed to the extent of about 10 per cent of the oral dose,<sup>21</sup> and is generally considered a poor choice for oral administration. The other digitalis preparations are adequately and uniformly absorbed from the gastrointestinal tract as follows: digitalis leaf—20 per cent, digoxin—50 per cent, acetyl digitoxin—67 per cent, and digitoxin—virtually 100 per cent.<sup>8, 22</sup>

The various digitalis glycosides differ widely in the rates of onset and decline of biologic activity,<sup>24</sup> even when given by the same route in therapeutically equivalent doses. Very little is known of the processes of degradation or excretion of the glycosides with the possible exception of digitoxin. Digitoxin is adsorbed by plasma albumin<sup>23</sup> which may be responsible for the delay in its onset of action and its prolonged effect. The strophanthus derivatives, when given intra-

venously, exert a full therapeutic effect within a few minutes to one hour. Characteristically, these rapidly acting preparations produce effects which are rapidly dissipated, making them unsuitable for long-term maintenance of digitalis effect. Lanatoside C and digoxin, when given intravenously, produce some effect on the heart within a few minutes, and generally exert a maximal effect within three hours, which declines over a period of 48 to 72 hours. Digitoxin and digitalis leaf are similar in their rates of onset and decline of activity. Digitoxin may act slightly faster when given intravenously; however, the time differential is not great. When digoxin is administered orally, its full effects are not apparent for about six hours, although its rate of decline is the same as when given intravenously.

#### **The Clinical Use of the Digitalis Preparations**

As previously stated, the principal therapeutic value of digitalis in congestive failure lies in the ability to increase a deficient cardiac output through improvement of myocardial function. The effectiveness of digitalis in a given case is determined largely by the nature of the underlying process leading to the development of failure. Digitalis may actually decrease the output of a normal heart, hence, the drug has no value in the treatment of dyspnea or edema of non-cardiac origin. When digitalis is given to the patient with an enlarged, but otherwise well-compensated heart, the cardiac output may also be decreased.<sup>25</sup> Christian<sup>26</sup> once advocated the "prophylactic digitalization" of such patients; however, this practice is not widely accepted at the present time. Digitalis therapy may be distinctly beneficial for the patient in incipient failure, that is, the cardiac output is sufficient except for brief periods when the demands of the body for blood exceed the reserve capacity of the myocardium. The physician can often find no signs of failure in such patients at the time of examination, although occasionally a gallop rhythm or an increased circulation time may be found.

Digitalis therapy is most effective in the patient with low-output failure which, fortunately, is the usual type of failure resulting from hypertensive, arteriosclerotic or

valvular heart disease. The patient with tight mitral stenosis and a sinus rhythm may respond poorly to digitalis administration,<sup>18</sup> since the pulmonary congestion is often the result of a compensated right ventricle continuing to force the blood into the pulmonary circuit which is already overloaded by blood dammed back by the tight mitral obstruction. Relief is often marked in such patients following the onset of atrial fibrillation and/or right ventricular failure. Repeated myocardial infarctions may reduce the total cardiac muscle mass to the point where the total potential contractile powers of the myocardium are below the level which would maintain a satisfactory cardiac output even with full digitalization. Digitalis therapy should be used in such patients, but the results may be disappointing.

When congestive failure is caused by constrictive pericarditis, acute myocarditis, or cyanotic congenital heart disease, digitalis administration is not particularly effective, although its use is not contraindicated in these situations.<sup>15</sup>

So-called high-output failure does not usually respond well to digitalis therapy, unless there is some associated intrinsic heart disease.<sup>24</sup> Thyrotoxicosis, severe anemia, severe infections, arteriovenous fistulas, beri-beri, pulmonary disorders, or pregnancy are all capable of producing this syndrome. The mechanism of failure in such cases is apparently the decreased peripheral vascular resistance which permits massive amounts of blood to be diverted through low resistance vascular channels into the venous circulation, by-passing the capillary bed and the kidneys. The venous return to the heart results in an increased load which is augmented further by renal retention of salt and water. The treatment of high-output failure should be aimed primarily at the underlying cause; however, digitalis may be given particularly if the situation is associated with intrinsic heart disease.

#### **The Administration of Digitalis Preparations**

Having made the decision to digitalize a patient in congestive failure, the selection of a suitable drug must be based upon the individual needs of the case. The urgency of the clinical situation must be assessed, i.e.,

a case of severe pulmonary edema may require rapid intravenous digitalization, whereas the average case can usually be digitalized by the oral route at a more leisurely rate with one of the longer acting preparations. The patient who is unable to take oral medications must be digitalized intravenously. In addition, every effort must be made to discover whether or not the patient has recently received a digitalis preparation. Too often digitalis intoxication results from neglecting to obtain this information when the patient is transferred from one physician to another.

Practicing physicians are interested in utilizing dosage schedules for drugs which can be applied safely to a majority of patients. The digitalis preparations cannot be administered effectively according to any rigid dosage schedules, but rather each patient represents an individual problem in the bio-assay of digitalis. Despite this fact, certain average doses of the cardioactive drugs have been determined which are usually safe to follow as guides for administration to the individual patient.<sup>24</sup> Digitalis and digitoxin are the drugs most frequently used for oral administration. Both preparations are very similar in producing effects which are slowly dissipated and therefore held to achieve a stability of effect. Minor gastrointestinal toxic symptoms appeared in less than three per cent of a group of 512 patients who had each received a single dose of 1.2 mg. of digitoxin. Single doses of 2.0 mg. of the drug induced toxic symptoms in nearly one-third of a group of 98 patients.<sup>27</sup> A few patients may be fully digitalized with as little as 1.0 mg. of digitoxin, while a rare patient may require 3.0 mg. of the drug to reach a full therapeutic effect. The average digitalizing dose of digitalis leaf is approximately ten times that of digitoxin. Acetyl digitoxin will accomplish full digitalization in the average patient with 2.0 mg.; however, the range of dosage varies from 1.5 to 2.5 mg. Batterman, De graff and Rose<sup>28</sup> have claimed that gitalin has a much wider therapeutic ratio than other digitalis preparations; however, others<sup>29</sup> have failed to confirm this point. It has been observed that gitalin is apt to induce cardiotoxic manifestations without causing gastrointestinal



symptoms. The average digitalizing dose of gitalin is 5.0 mg., with a range of 4.0 to 8.0 mg. Digoxin is more often reserved for intravenous administration; however, it may be given satisfactorily by mouth. The average oral dose of digoxin required for full digitalization is about 3.0 mg. with a range from 1.0 to 4.0 mg.

The previously-listed average digitalizing doses are generally safe to use as guides, but should not be given as single doses. The best plan of digitalization in the average patient is to administer the chosen drug in small divided doses at sufficiently long intervals to allow observation of the full effect of each dose. Full digitalization can usually be accomplished within 24 to 72 hours by this method. Using digitoxin, a satisfactory plan might be as follows: 0.4 mg. of the drug is given every eight hours for three doses, observing the clinical effect of each dose. If full digitalization has not been achieved with 1.2 mg. of the drug, subsequent smaller doses of 0.2 mg. of digitoxin may be given every eight hours until the desired effect is reached. A similar technique may be followed using therapeutically equivalent doses of any of the other oral preparations of digitalis.

Seldom is the end-point of full digitalization sharply defined in congestive failure, except when there is associated atrial fibrillation. Some physicians prefer to digitalize the patient to a mildly toxic state; however, some patients object strenuously to the toxic symptoms, and also certain seriously-ill patients have such a narrow margin between optimal digitalization and toxicity that excessive doses of the drug may be dangerous. Observation of the electrocardiographic effects of digitalis cannot be relied upon to indicate either the level of optimal digitalization or the nearness of intoxication. Once toxicity has developed, the electrocardiogram may sometimes help to make the proper diagnosis by showing some characteristic conduction defect or arrhythmia. Some patients are so critically ill that the end-point of digitalization may be exceedingly difficult to estimate; indeed, it may be virtually impossible to decide whether the patient is intoxicated or whether additional amounts of digitalis are needed. Unless the

situation is extremely urgent, the wisest course is to discontinue the drug temporarily while observing whether the patient's condition improves or worsens. Small intravenous doses of the rapidly dissipated glycosides have been given to such patients in the hope of clarifying the situation either by aggravation of toxic symptoms or by improvement of the state of failure. This procedure is hazardous, but may prove to be useful in a few selected cases. The author prefers to use lanatoside C or digoxin for this purpose. Lown and Levine<sup>18</sup> have reported similar use of the ultra-short acting drug, acetyl strophanthidin for such cases; however, fatalities have been reported from this practice,<sup>30</sup> and the use of this drug should probably be limited to purely investigative studies in highly-trained hands.

Upon reaching the desired level of digitalization, the physician must then determine the daily dose of drug necessary to maintain an optimal digitalis effect. This again is a clinical experiment in which an average dose of the chosen drug is given on a trial basis over a period of time sufficiently long to allow errors in dosage to become apparent. Several weeks may elapse before errors in dosage of the longer-acting preparation are evident. Average maintenance doses of the oral digitalis preparations are approximately as follows:<sup>24</sup> digitalis leaf—0.15 Gm., digitoxin—0.15 mg., acetyl digitoxin—0.3 mg., gitalin—0.5 mg., digoxin—0.5 mg. The range of maintenance dosage of each drug varies widely from patient to patient, and the physician must titrate each patient clinically to the correct dose.

Several digitalis preparations may be given intravenously to patients who are unable to receive oral medication. Except in urgent situations, the same general plan of administration of each dose should be followed as when digitalizing a patient orally; that is, small divided doses of the drug at intervals long enough to permit observation of the effect. The intravenous dose of digitoxin is the same as the oral dose; however, the other digitalis glycosides are given in considerably smaller doses by the intravenous route. The average intravenous digitalizing dose of acetyl digitoxin is 1.5 mg., and for digoxin is 1.0 mg. Lanatoside C is also



a satisfactory intravenous preparation, the average digitalizing dose being 1.6 mg. It is usually advisable not to attempt full digitalization by the intravenous route in less than 48 hours.

Rapid intravenous digitalization, although hazardous, may be required as a life-saving measure in certain cases such as severe pulmonary edema. Digoxin or lanatoside C are more frequently used for this purpose than the other glycosides. Both drugs induce a clinical effect within a few minutes and maintenance of the effect is more stable than with the strophanthus derivatives. Kay<sup>24</sup> has recommended the following plan for rapid intravenous digitalization with digoxin or lanatoside C: one-half of the average digitalizing dose is given slowly by vein over a period of five minutes, followed, if necessary, by half as much in each of two hourly doses. Subsequent doses should be withheld for six hours to allow full development of the drug effect. Ouabain produces a full therapeutic effect much more rapidly than digoxin or lanatoside C. The absolute maximum dosage for ouabain is as follows: an initial dose of 0.5 mg. to be followed every 30 minutes with 0.1 mg. of ouabain for no more than three doses. Once the patient has passed the critical period, further digitalization should be carried out at a slower rate, preferably by mouth.

### Digitalis Intoxication

Digitalis intoxication has allegedly become more frequent in recent years, perhaps because of the more widespread use of digitalis and probably because of the trend toward administration of larger doses over shorter periods of time. The common practice of using potent diuretic drugs which cause increased excretion of potassium from the body may also contribute to the increased incidence of digitalis intoxication.

The most common and usually the earliest manifestations of digitalis intoxication are gastrointestinal symptoms of anorexia, nausea, vomiting or diarrhea. If such symptoms occur within one or two hours after oral administration of the drug, the effect is one of local gastrointestinal irritation, other-

wise such effects are due to involvement of the central nervous system. Visual disturbances, restlessness, headache, mental confusion or stupor may result from the toxic effects of digitalis on the central nervous system. Digitalis intoxication also affects the heart, being capable of inducing any of the arrhythmias. Generally, the first manifestation of cardiotoxicity to be observed at the bedside is the appearance of premature contractions, often occurring in a bigeminal rhythm (coupling). Sometimes, however, premature contractions are present prior to digitalization, and may be decreased in number or completely abolished by restoring the heart to a compensated state.

It is known that calcium and digitalis have synergistic effects on the myocardium; in fact, intravenous administration of calcium salts to the digitalized patient is dangerous and has been known to have lethal consequences.<sup>31</sup> Recently Guber and Kallman<sup>32</sup> have suggested that a rational approach to the treatment of severe digitalis intoxication might include methods for lowering the serum concentration of calcium. These investigators advocate the use of the chelating agent, disodium versenate (disodium ethylene diamine tetracetate) to lower the serum calcium level. The drug is administered slowly intravenously, 600 mg. in 1000 ml. of 5 per cent glucose in water.

Frequently a patient who has appeared to be properly digitalized will develop signs of toxicity after receiving a potent diuretic. Formerly, it was believed that this phenomenon was due to redigitalization by the mobilization of edema fluid containing excessive amounts of digitalis. Subsequently it has been shown that only negligible amounts of digitalis can be identified in edema fluid, and apparently the reason for the appearance of toxic symptoms is the excessive loss of potassium ion occurring with the excretion of sodium and water. When digitalis intoxication has been induced by diuresis, the symptoms may be more rapidly improved by administration of 5.0 to 7.5 Gm. of potassium chloride orally in divided doses over a 24-hour period, unless the symptoms are severe enough, in which case the above

amounts of potassium chloride may be given intravenously in 500 ml. of 5 per cent glucose in distilled water.

## REFERENCES

1. Warren, J. V. and Stead, E. A. Jr.: Fluid dynamics in chronic congestive heart failure. *Arch. Int. Med.* 73: 138, 1944.
2. Merrill, A. J.: Edema and decreased renal blood flow in patients with chronic congestive heart failure: evidence of "forward failure" as a primary cause of edema. *J. Clin. Invest.* 25: 389, 1946.
3. Stead, E. A., Jr., Warren, J. B., and Brannon, E. S.: Cardiac output in congestive heart failure. *Am. Heart J.* 35: 529, 1948.
4. Johnson, R. D. and Conn, J. W.: Aldosterone, Antidiuretic hormone and congestive heart failure. *Mod. Concept. Cardiovasc. Dis.* 27: 431, 1958.
5. Eichna, L. W., et al.: Interrelationships of cardiovascular renal and electrolyte effects of intravenous digoxin in congestive heart failure. *J. Clin. Invest.* 30: 1250, 1951.
6. Farber, S. J., et al.: Effect of intravenously administered digoxin on water and electrolyte excretion and on renal functions. *Circulation.* 4: 378, 1951.
7. Cattell, M. and Gold, H.: Influence of digitalis glycosides on force of contraction of mammalian cardiac muscle. *J. Pharmacol. & Exper. Therap.* 62: 116, 1938.
8. Goodman, L. and Gillman, A.: The pharmacologic basis of therapeutics. Ed. 2, New York, Macmillan, 1955.
9. Cohn, A. E. and Stewart, H. J.: Evidence that digitalis influences contraction of the heart in man. *J. Clin. Invest.* 1: 97, 1924.
10. Starling, E. H.: The Linacre Lecture on the Law of the Heart. New York, Longman Green, 1918.
11. Friedman, J. and St. George, S.: Cardiac and hepatic intracellular fate of digitoxin. *J. Clin. Invest.* 32: 569, 1953.
12. Wood, E. H. and Moe, G. K.: Electrolyte and water content of ventricular musculature of heart-lung preparations with special reference to effects of cardiac glycosides. *Am. J. Physiol.* 136: 515, 1942.
13. Szent-Gyorgyi, A.: The chemical physiology of contraction in body and heart muscle. New York, Academic Press, 1953.
14. Bing, R. J., et al.: Effect of strophanthus on coronary blood flow and cardiac oxygen consumption of normal and failing human hearts. *Circulation.* 2: 513, 1950.
15. Wollenberger, A.: Energy metabolism of the failing heart and metabolic action of the cardiac glycosides. *J. Pharmacol. & Exper. Therap.* 97: 311, 1949.
16. Olson, R. E. and Schwartz, W. B.: Myocardial metabolism in congestive heart failure. *Medicine.* 30: 21, 1951.
17. Gold, H., et al.: On vagal and extra vagal factors in cardiac slowing by digitalis in patients with auricular fibrillation. *J. Clin. Invest.* 18: 429, 1949.
18. Lown, B. and Levine, S. A.: Current concepts in digitalis therapy. *New Eng. J. Med.* 250: 771, 819, 866, 1955.
19. Stoll, A.: The genuine cardiac glycosides. *J. Am. Pharm. A.* 27: 761, 1938.
20. Rothlin, E.: Some aspects of differentiation of cardioactive glycosides. *Proc. of Rudolf Virchow Med. Soc. in City of New York.* 6: 74, 1947.
21. Batterman, R. C. and DeGraff, A. C.: Comparative study of use of purified digitalis glycosides, digoxin, digitoxin, and lanatoside C for management of ambulatory patients with congestive heart failure. *Am. Heart J.* 34: 663, 1947.
22. Löffler, W., et al.: Acetyl-Digitoxin, clinical observations on treatment of patients with advanced congestive heart failure. *Am. Heart J.* 47: 898, 1954.
23. Farah, A.: On the combination of cardioactive glycosides with serum proteins. *J. Pharmacol. & Exper. Therap.* 83: 143, 1945.
24. Kay, C. F.: Clinical use of digitalis preparations. *Circulation.* 12: 116, 291, 1955.
25. Harvey, R. M., et al.: Some effects of digoxin upon the heart and circulation in man, digoxin in enlarged hearts not in congestive failure. *Circulation.* 4: 366, 1951.
26. Christian, H. A.: Use of digitalis other than in the treatment of cardiac decompensation. *J.A.M.A.* 100: 789, 1933.
27. Gold, H., et al.: Clinical studies on digitoxin (digitaline native), with further observations on its use in the single average full-dose method of digitalization. *J. Pharmacol. & Exper. Therap.* 82: 187, 1944.
28. Batterman, R. C., et al.: The therapeutic range of gitalin (amorphous) compared with other digitalis preparations. *Circulation.* 5: 201, 1952.
29. Weiss, A. and Steigmann, F.: Gitalin in treatment of congestive heart failure: A clinical study. *Am. J. M. Sc.* 227: 188, 1954.
30. Burrell, Z. L. and Coggins, R. P.: Ventricular fibrillation following administration of acetyl strophanthidin. *Am. Heart J.* 46: 309, 1953.
31. Bower, J. O. and Mengle, H. A. K.: Additive effects of calcium and digitalis: warning, with report of two deaths. *J.A.M.A.* 106: 1151, 1936.
32. Gubner, R. S. and Kallman, H.: Treatment of digitalis toxicity by chelation of serum calcium. *Am. J. M. Sc.* 234: 136, 1957.

Springer Clinic

6th and Cincinnati, Tulsa, Oklahoma

CHRISTIAN, n. One who believes that the New Testament is a divinely inspired book admirably suited to the spiritual needs of his neighbor. One who follows the teachings of Christ in so far as they are not inconsistent with a life of sin.

*From the Devil's Dictionary by Ambrose Bierce*  
—Sagamore Press, Inc.

# The Metabolic Response to Trauma

**M**ANY INVESTIGATORS have tried to relate the metabolic changes following trauma to endocrine secretion. Most often mentioned are the secretions of the adrenal and pituitary glands.

Claude Bernard,<sup>1</sup> then W. Cannon<sup>2</sup> were the first to call attention to this. More recently Hans Seyle<sup>3</sup> added to this idea a concept of systemic response and an interrelationship of physiological and hormone systems. Ramey<sup>4</sup> has discussed the interrelationship of the sympathetic nervous system and the adrenal cortex. Moore<sup>5</sup> has emphasized the metabolic response to trauma, and Dunphy and Edwards<sup>6</sup> have stressed the importance of the metabolic response at the cellular level.

Figures 1 and 2 show some of the more important and generally accepted concepts of hormonal interrelation. The basic concept introduced by Hill<sup>7</sup> and elaborated by Stanley,<sup>8</sup> has been broadened further to include newer concepts such as the Adipokinetic factor. The purpose of this paper is to correlate these concepts and interrelationships with Moore's<sup>5</sup> four phases of surgical convalescence and the important changes associated with each of these phases. Finally,

## JAMES D. FUNNELL

James D. Funnell is a senior medical student at the University of Oklahoma School of Medicine.

the therapeutic measures employed in each convalescent phase are described.

Figure 1 is based on an interlocking triad of epinephrine, neuroendocrine and a histamine-like response. When survival is threatened by insult or trauma, e.g., surgery, an epinephrine or adrenergic response is initiated first in this "flight or fight" response. Several important events occur. There is vasoconstriction, and an increase in pulse and blood pressure. Liver glycogen is released with production of a hyperglycemia, the spleen contracts, white blood cells are mobilized and fibrinogen is released. The blood sugar increase acts on receptor cells in the islets of Langerhans with insulin release and lowering of blood sugar. The decreased blood sugar further stimulates the adrenal medulla, releasing a histamine-like substance. The histamine-like response acts to cause vasodilatation and decreased blood pressure, a further stimulant to epinephrine production, and a potent stimulant of the pituitary gland.

From the Department of Surgery of the University of Oklahoma Medical Center, Oklahoma City, Oklahoma.



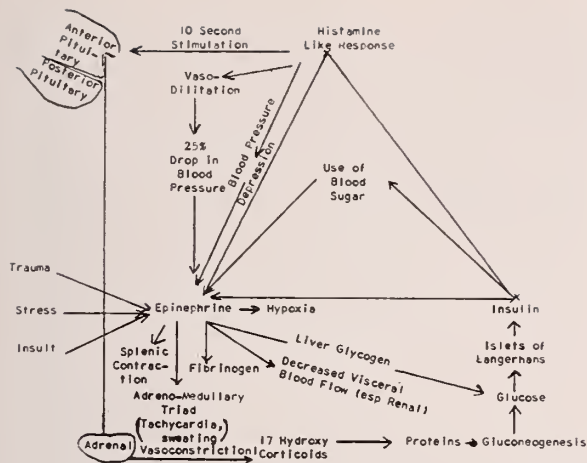


Figure 1

The pituitary figures prominently in the release from the neurohypophysis of the antidiuretic hormone (pitressin) which acts on the distal renal tubules to conserve water despite the need to excrete it. Also from the adenohypophysis come the trophic hormones. Especially important in the stress response are the adreno-cortico-trophic hormone (ACTH), somatotrophin (growth hormone), thyroid stimulating hormone (TSH), and the gonadotropins (follicle stimulatings, leutinizing and lactogenic hormones). A newly recognized hormone adipokinetic factor, concerned with mobilization of fat is of importance as a source of energy in a traumatized individual. See figure 2.

Following physical trauma ACTH acts on the middle portion of the adrenal cortex (Zona Fasciculata) with subsequent release

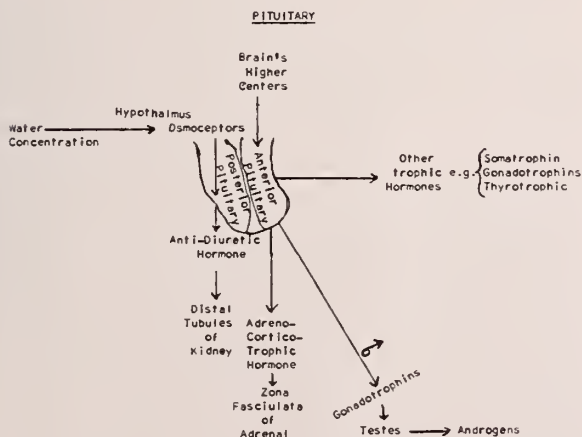


Figure 2

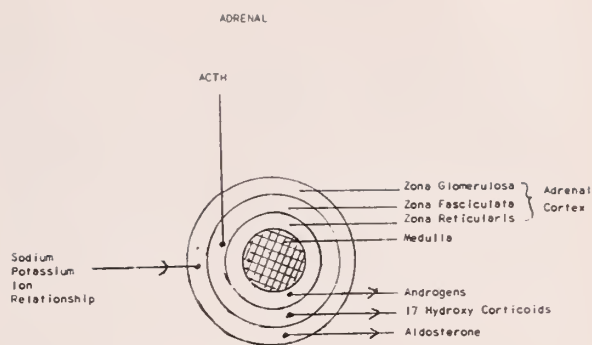


Figure 3

of Glucocorticoids (17 Hydroxy corticoids, especially Hydrocortisone). The glucocorticoids act on body proteins and by gluconeogenesis produce glucose which in turn stimulates the islets of Langerhans to release more insulin.

The sodium and potassium ions act more directly on the adrenal cortex outer layer (Zona glomerulosa) to release mineral corticoids (electrocorticoids). The most active of these, aldosterone, acts on the distal renal tubule to conserve sodium and excrete potassium.

Androgens, produced in the adrenals and testes in the male, are related to protein anabolism. In the female, estrogens are released from ovaries. See figure 3.

Other important concepts, depicted in figures 1 and 2, entail such things as the hypothalamus and the neuro-endocrine feedback mechanisms as well as osmoreceptors concerned with regulation of the antidiuretic hormone. Lastly, somatotrophin may be concerned with Adipokinetic activity. Thyrotrophic hormone and the thyroid hormone regulate metabolic rate, oxygen consumption, cell division, red blood cell maturation and synergism with glucocorticoids.

Moore<sup>5</sup> found that four phases appeared in sequence in normal post traumatic metabolism. He called these: (1) Phase I or the adrenergic-corticoid phase, lasting an average of four days; (2) Phase II, the corticoid withdrawal phase, lasting three or four days; (3) Phase III, the spontaneous anabolic phase lasting about 20 days; and (4) Phase IV, the fat gain phase, lasting

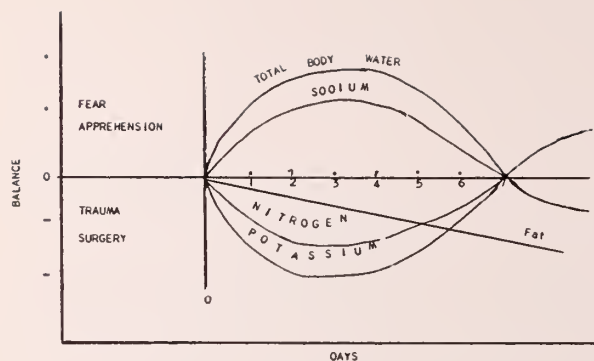


Figure 4

weeks or months. In this scheme, we enter Phase I with the neurologic stress of an approaching operation and the person at "Zero" balance for water, nitrogen, sodium, potassium and weight. Phase IV ends when balance following operation is restored again and fat and weight are re-established. During each of these phases specific events occur in the individual. By applying the basic information outlined in the figure it is possible to treat the surgical patient more accurately. For this reason let us examine each phase separately and outline some of the salient features. In the first phase, the corticoid phase, the following events occur. See figure 4.

(1) In general there is antidiuresis where water is resorbed by the renal tube. In addition sodium is retained while potassium is lost. The chief factors stimulating this are the antidiuretic hormone and Aldosterone. Other factors include decreased renal blood flow with decreased glomerular filtration as part of the adrenergic response.

(2) Changes in capillary permeability and other factors allow dilution and expansion of the extravascular component. There is also continued loss of insensible water and loss of fluid from other extra renal sources. In the latter, great importance must be placed on body fluids lost by gastric suction, vomiting, ascitic fluid, or wound and inflammatory drainage.

(3) Nitrogen balance is negative, primarily because of decreased or absence of intake. Other losses occur as amino acids

are converted by gluconeogenesis, forming blood sugar. In this stage there seems to be wound priority for amino acids, especially these containing sulfur (e.g. Methionine). These are utilized in wound repair. The negative nitrogen balance has been called the Phase of Obligatory Catabolism because it is almost independent of attempts to reverse it. Abbott<sup>9</sup> has shown, however, that early parenteral or oral alimentation may minimize this catabolic phase.

(4) In this phase the normal potassium to nitrogen excretion ratio of 2.7:1 is altered and may become 5:1 or 6:1 or greater. This probably relates to catabolism of intracellular protein. The loss of intracellular water and potassium occurs prior to the catabolic cellular breakdown. It should be remembered that potassium is maintained intracellularly with glucose and glycogen. With the metabolism of these glycogen stores, the intracellular potassium necessary for the storage in cells migrates to the extracellular compartment and is excreted by the kidneys.

(5) There is a fall in the circulating eosinophile count. In major operations it often falls to zero and its backswing marks the beginning of the Corticoid withdrawal phase.

(6) These include responses such as adynamic ileus, lack of oral intake, a rise in body temperature, and the beginning utilization of body fat. Sex function is lost and amenorrhea occurs in the female.

The principles of treatment of surgical patients during this phase follows logically.

Phase I: During Phase I, as well as all other phases, blood loss must be replaced immediately and in adequate quantity. The problems of correct typing and cross matching as well as the danger of transfusion reaction cannot be overemphasized. The importance of rapid blood loss replacement lies not only in hemodynamics and oxygen carriage but also in the following: (1) over 90% of CO<sub>2</sub> carriage is by the red blood cell; (2) the effect of nitrogen depletion due to



blood loss and (3) much of the buffer capacity of the blood lies in the red blood cells.

Replacement of fluid other than blood is by quantity and kind. It is useful to remember the body is 50 to 70% water and of this approximately 40% of body weight may be considered intracellular, 15% extravascular and 5% intravascular. Important in evaluating fluid replacement is the technique of weighing the patient on scales sensitive to 20-50 gm. and replacement of loss by weight. This technique is excellent but one must remember that post-operatively fats are mobilized by the adipokinetic factor, causing a 150 to 500 gm. fat loss daily. Daily fat loss and production of metabolic water (150-250 cc) should be considered in the interpretation of weight changes, and in fluid therapy.

In addition the body continues to lose insensible water. The minimal rate for this is 750-1000 cc. per day. Minimal urine output is about 600 cc. per day though 1200-1500 cc. of urine per day is more nearly optimal. All fluid losses must be replaced parenterally or orally. In addition to replacing insensible and urinary fluid loss, extra renal losses must be replaced in kind. When small quantities of such fluids are lost by gastric suction, through fistulae, etc., their composition may be considered equal to plasma electrolyte concentrations. When larger quantities of fluid are lost electrolyte analysis should be performed on aliquots as a further guide for therapy. Body weight, volumetric or gravimetric measurements of dressings and fluids lost also are valuable adjuncts in planning replacement therapy. Because of sodium retention and, in the case of moderate extra renal losses, 5% glucose in water is usually sufficient to provide water replacement.

In Phase I, day 1, potassium usually is not given due to the forementioned endogenous sources from intracellular stores, and because of ease of oral administration on the third or fourth day. In other more severe cases potassium is given in terms of losses, 20-40 meq. per day are added to intravenous solutions. Potassium is never given when renal flow is less than 30 ml/hr, because of

the danger of hyperpotassmia. Due to atonia of the gut during this phase, all administration of fluids is carried out by intravenous routes. However, sodium should be given for specific indication and not routinely during this Phase because both mineralo corticoids and glucocorticoids cause sodium and chloride retention. Sodium blood levels may show a relative decrease to 130-135 mEq/L due to an increase in total body water caused by antidiuretic hormone.

Nitrogen is in negative balance due to the catabolic phase. Endogenous utilization causes a loss of muscle mass with concurrent loss of intracellular potassium and water. Replacement therapy is relatively unsuccessful due to several factors. The first factor is energy of utilization, or energy from endogenous sources necessary to convert protein into a utilizable form. This accounts for 25% loss of protein in its original energy value. Secondly, there exists a nitrogen to calorie, or N:C, ratio which requires approximately 300 calories for each gram of nitrogen. A calorie intake below this level results in protein source consumption to meet daily metabolic needs for calories. At this stage, the wound also has priority regardless of other body needs.

A useful index for following patient progress through this stage is the eosinophile count which drops to or near "0" following trauma (surgery). It remains low through Phase I, then swings back, often overshooting normal blood count levels. In this phase, as in later phases, fever and wound infection must be guarded against. A 1°+ rise in temperature the first two-four days postoperatively is normal.

It is important to recognize that survival depends upon adrenal production of the glucocorticoids. In patients who have received exogenous corticoid (e.g. cortisone) prior to trauma, there may be an atrophy of the adrenals as in Addison's Disease. The patient must be maintained on exogenous corticoids, operatively and postoperatively. Whenever there is a history of steroid therapy, intravenous hydrocortisone should be available in the operating room. It should



be administered immediately if there is hypotension, as this rapidly may become irreversible. However, steroid therapy will not compensate for blood loss. This must be replaced by blood.

Schlegel<sup>10</sup> has pointed out that the ratio of solids and water from exogenous and endogenous sources must equal that excreted. He reduces this to the formula:

$$\frac{SI}{WI} + \frac{SP}{WP} = \frac{SE}{WE}$$

In this formula S equals solids, W equals water, I equals ingested, P equals produced and E equals excreted. Thus, the solids and water ingested either orally or parenterally plus the solids and water produced by the metabolic process must equal the solids and water excreted. In Phase I there is an upset of this ratio because of decreased intake, increased metabolic activity due to fever, and decreased water output due to antidiuresis and the antidiuretic hormone. To be corrected, this ratio requires an increase in solid intake. Schlegel proposes intravenous administration of a solid, 4% urea, administered in 5% glucose, to solve this problem.

**Phase II: Corticoid withdrawal phase:** In this phase there is reversal of the changes effected during the corticoid phase, hence its name. Ushering in this phase is the return of gastrointestinal motility with passing of flatus. Local wound healing occurs with the elaboration of a mucopolysaccharide containing ground substance. Two other important components of the ground substance are hexosamine and chondroitin sulfate. Tensile strength of the wound seems to parallel the content of 5 hydroxy proline. Here, even with exogenous proteins available, sulfur containing amino acids are still short in over-all body economy, due to their utilization in wound healing.

In the extracellular fluid, it is interesting to note that although the sodium and chloride are retained, the total serum concentration falls due to total body water increase. As this phase is ushered out there is a sodium diuresis and potassium retention. There is a reversal of the negative nitrogen balance, total body water decreases

and body fat continues to be metabolized for energy.

Treatment during the state of corticoid withdrawal, potassium retention and sodium loss is directed toward early establishment of complete oral intake. During this stage the gastrointestinal tract becomes active and oral intake can begin. Parenteral administration should be decreased as oral feedings are increased. Wound healing is progressing normally but there is still a relative shortage of sulfur containing amino acids. If the kidneys are functioning normally, electrolyte balance can be controlled by oral administration and renal selective reabsorption and excretion. During this stage early ambulation will prevent circulatory stasis, thrombosis, edema and phlebitis.

In Phase I and II, vitamins are essential, especially the non-stored vitamins such as the vitamin B complex and those rapidly utilized such as vitamin C. The latter is utilized in wound healing, synthesis of adrenal steroids, and many of the body's oxidation and reduction enzyme systems.

**Phase III. Spontaneous Anabolic Phase:** In this phase protein stores and enzymes are replenished. The potassium to nitrogen excretion ratio is less than 2.1:1. Water and potassium enter the cell prior to matrix formation. Potassium is also needed intracellularly for glycogen storage and a relative potassium deficiency ensues. With anabolism, strength, interest and weight gain are seen in the patient. Wound healing continues, especially in terms of strength, and collagenous scar tissue is elaborated. The nitrogen balance is positive.

Treatment is directed toward the spontaneous anabolism. In this phase, the body requires a high protein, high carbohydrate diet with a high nitrogen to calorie ratio. During anabolic buildup, hypopotassemia may occur because potassium now enters the cell more rapidly than matrix is reformed. This can be corrected by adequate oral intake. An abundance of vitamins is needed. As in the first two phases, the patient gains strength and should attain complete ambulation; the wound should be protected from

great stress until tensile strength is adequate. As oral intake is possible now, parenteral therapy should be stopped.

**Phase IV: Fat Gain:** In this phase there is a return to a zero metabolic balance. The individual begins to replace the fat utilized in the previous phases. Sexual libido and potency return. Ultimate survival of the species is dependent on this final event.

Treatment must be prolonged as the fat gain phase may last for weeks or months. During this time the metabolic balance is restored and the fat depot is regained. In addition there is return of sexual function, menstruation in the female and potency in the male. Treatment is directed toward diet, exercise, and total rehabilitation.

### Summary

Many investigators, including Bernard, Cannon, Seyle, Ramey, Moore and recently Dunphy and Edwards, have demonstrated a metabolic and systemic response to trauma carried down even to the cellular level. Many of the generally accepted hormonal effects and their interrelationship are diagrammed and discussed. The four phases of post traumatic metabolism as described by Moore are given, as well as changes occurring throughout these phases, and some current thoughts about general treatment.

### Conclusion

The metabolic changes occurring in the body following trauma are related to a systemic neuroendocrine response, and these responses are predictable. With knowledge of these, the predictable responses, reasoning can lead to more successful treatment of the surgical patient.

### BIBLIOGRAPHY

1. Bernard, Claude: *Lecon sur Les Phenomines de la vie communs aux animaux et aux vegetaux* Paris, 5-6. Balliere et fils, 1878.
2. Cannon, Walter B., M.D., S.D., L.I.D.: *Bodily Changes in Pain, Hunger, Fear, and Rage*. D. Appleton-Century Company, Incorporated. New York, London, 1936. Second Edition.

3. Selye, Hans, M.D., Ph.D. (Prague), D.Sc. (McGill), FRS (Canada). *Textbook of Endocrinology*. Acta Endocrinologica Univesite De Montreal, Montreal, Canada. Copyright 1947. Fifth Printing 1948.
4. Ramey, Estelle R., and Goldstein, M. S.: *The Adrenal Cortex and the Sympathetic Nervous System*. Phys. Reviews, Vol. 37, 1957, pp. 155-195.
5. Moore, Francis D.: *Bodily Changes in Surgical Convalescence*. Ann. Surg. Vol. 137, No. 3, March, 1953, p. 289.
6. Edwards, Leon C., M.D., and Dunphy, J. Englebert, M.D.: *Wound Healing. I. Injury and Normal Repair*. New Eng. J. Med. Vol. 259, No. 5, 31 July 1958, pp. 224-233.
7. Hill, Horace, M.R.C.P.: *The Histamine and Insulin Treatment of Schizophrenia and Other Mental Diseases*. The Williams and Wilkins Co., Baltimore, 1940.
8. Stanley, A. J., B.A., M.S., Ph.D.: *Physiology Lectures 1957-1958*, University of Oklahoma School of Medicine.
9. William D. Holden, M.D., Harvey Krieger, M.D., Stanley Levey, Ph.D., and William E. Abbott, M.D.: *The Effect of Nutrition on Nitrogen Metabolism in the Surgical Patient*. Ann. Surgery, Vol. 146, Jul-Dec. 1957, pp. 563-579.
10. Schlegel, J. U., Eldrup, Jorgensen, S., Stone, H.: *Studies in Metabolism of Trauma*. Ann. Surgery, Vol. 145, Jan. 1957, p. 12.

### SUPPLEMENTARY BIBLIOGRAPHY

1. Allen, J. Garrett, M.D., Harkins, Henry N., M.D., Ph.D., Moyer, Carl A., M.D., and Rhoades, Jonathon E., M.D., D.Sc.: *Med. Surgery Principles and Practice*. J. B. Lippincott Company, Copyright 1957, Philadelphia, London.
2. August, J. Thomas, M.D., Nelson, Don H., M.D., and Thorn, George W., M.D.: *Aldosterone*. New Eng. J. Med., 259: 19, 20, 6 Nov. 1958 and 13 Nov. 1958. Pp. 917-923, pp. 967-971.
3. Deutsch, Stanley, Ph.D., M.D. and Mescon, Herbert, M.D.: *Melanin Pigmentation and its Endocrine Control*. New Eng. J. Med. Vol. 257, No's. 5 & 6, 1 Aug. 1957 and 8 Aug. 1957, pp. 222-226, pp. 268-272.
4. Edwards, Leon C., M.D. and Dunphy, J. Englebert, M.D.: *Wound Healing. 2. Injury and Abnormal Repair*. New Eng. J. Med. Vol. 259, No. 6, 7 Aug. 1958, pp. 275-285.
5. Elmon, R.: *Maintenance of Nitrogen Balance by I.V. Administration of Plasma, Proteins, and Hydrosolates*. Phys. Review 24: 373-389. July 1944.
6. Engle, Frank L., Engel, Mildred G., and McPherson, Harry T.: *Ketogenic and Adipokinetic Activities of Pituitary Hormones*. Endocrinology, July-Dec. 1957. Vol. 61, pp. 713-723.
7. Engel, Frank L.: *Some Unexplained Metabolic Actions of Pituitary Hormones with a Unifying Hypothesis Concerning their Significance*. Yale J. of Biol. and Med. Vol. 30, 1957-1958, pp. 201-223.
8. Farrell, Gordon: *Regulation of Aldosterone Secretions*. Physiological Reviews, Vol. 38, Oct. 1958, No. 4, pp. 709-728.
9. Gamble, J. L.: *Chemical Anatomy, Physiology and Pathology of Extracellular Fluid*. Cambridge, 1942, Howard University Press.
10. Gins, James Armes, M.D., D.Sc. (Med) F.A.C.S.: *Fundamentals of General Surgery*. The Year Book Publishers, Inc., Copyright 1957, Chicago.
11. Hayes, M. A., M.D., Ph.D., Williamson, R. J., M.D., and Heidenreich, W. F., M.D., New Haven Conn.: *Endocrine Mechanisms Involved in Water and Sodium Metabolism During Operation and Convalescence*. Surgery, Vol. 41, March 1957, No. 3, pp. 353-386.
12. Houssay, Bernardo A., M.D.: *Human Physiology*. McGraw-Hill Book Company, Inc., New York, Toronto, London, 1955, Second Edition.
13. Jackson, David S., Ph.D.: *Some Biochemical Aspects of Fibrogenesis and Wound Healing*. New Eng. J. Med. Vol. 259. No. 17, 23 Oct. 1958, pp. 814-819.
14. Moore, Francis D., M.D.: *Common Patterns of Water and Electrolyte Change in Injury, Surgery, and Disease*. New Eng. J. Med. Vol. 258, No's 6, 7, 8 and 9. 6 Feb. 1958, 13 Feb. 1958, 20 Feb. 1958, 27 Feb. 1958, pp. 277-285, pp. 325-333, pp. 377-384, pp. 427-432.
15. Weil, R. and Stetten, D.: *The Urinary Excretion of a Fat Mobilizing Agent*. J. Biol. Chem. 1947, 168, 129.
16. Werner, Sidney C., M.D.: *Problems of Parenteral Nutrition*. Amer. J. Med., Vol. 5, July-Dec. 1948.

800 N.E. 13, Oklahoma City, Oklahoma





### Message from the Dean

Children's Memorial Hospital as an integral unit of the University of Oklahoma Medical Center has three major functions—teaching, patient care and research.

The hospital is staffed to describe and demonstrate the best available methods of care for sick and handicapped infants and children. Achievement of this goal requires the ample and balanced supply of patient material provided by the State Crippled Children's program and by referring physicians throughout the state and area.

The preferred types of cases are diagnostic problems, medical and surgical problems which cannot be properly handled in the available community hospital, and patients who, in the opinion of the referring physician, present good teaching possibilities.

In an attempt to serve the physicians of Oklahoma as a referral and teaching center, Children's Memorial Hospital has certain special facilities:

In the Department of Pediatrics are specialists in pediatric cardiology, pediatric neurology, infectious disease, virology, metabolic and endocrine disorders, the handicapped child, speech and hearing disorders, and others. A number of practicing pediatricians in Oklahoma City and in surrounding communities participate in the teaching program.

The General Pediatric Outpatient Clinic is scheduled daily except Saturday and Sunday. The following special clinics: Child Guidance, Pediatric Neurology, Convulsive Disorders, Pediatric Allergy, Rheumatic Fever, Well Baby Clinic, Cardiac, Metabolic, Endocrine and Arthritis, are held regularly at less frequent intervals. The Infectious Disease Division has microbiological laboratories and medical and nursing personnel trained to care for patients with poliomyelitis, meningitis and other infectious diseases.

A Child Study Center provides comprehensive care for children with mental retardation, behavior disorders and other chronic or multiple handicaps. There are also the Premature Nursery, the Cardiovascular Unit for evaluation of children with various types of heart diseases, and a program for chemotherapeutic and surgical treatment of neoplastic disease.

The Orthopedic Service, which has been in successful operation for many years by the Department of Orthopedic and Fracture Surgery, conducts general and special clinics each week for children. Special services include such clinics as Scoliosis, Hand, Amputee and Cerebral Palsy.

Plastic Surgery, E.N.T., and Eye Clinics are held regularly, coordinated with inpatient care. Dental and orthodontia services are now available. A new multidiscipline Cleft Palate Conference is functioning as a rehabilitation consultation clinic.

A Pediatric Surgery Service has been developed as the key step in establishing a center for the study and care of surgical problems. Concentration of efforts in the new-born period is proving effective in the surgical group of congenital anomalies once considered hopeless. Thoracic and pediatric surgical clinics are held regularly. Since the state's first successful open heart operation at Children's Memorial Hospital in January, 1959, twenty-four of the 26 procedures in children under 15 years have been successful.

Children's Memorial Hospital is a general hospital for acute cases only. It cannot accommodate the long term chronically ill or patients requiring custodial care. There are no inpatient facilities for the severely emotionally disturbed child.

*Mark R. Everett*



Griseofulvin, a new antibiotic effective against many fungi when administered orally, has received much recent attention. In this article the usefulness and dosage as well as limitations of this antibiotic are discussed.

## Griseofulvin Therapy of Superficial Cutaneous Mycoses\*

ORAL THERAPY with griseofulvin for superficial fungous infection was first reported by Gentles<sup>1</sup> in August 1958. Following the preliminary report of the experimental use of this drug in humans by Blank<sup>2</sup> in December 1958 interest in the potentiality of griseofulvin became widespread. Subsequent studies have demonstrated the efficacy of this medication in the treatment of *Trichophyton*,<sup>3</sup> *Microsporon*,<sup>4,5</sup> and *Epidermophyton* infection of the superficial layers of the skin as well as in disease caused by *Norcardia brasiliensis*<sup>6</sup> and probably *Sporotrichium schenkii*.<sup>7</sup> Infections by other fungi, i.e., *Norcardia*, *Blastomyces*, *Cryptococcus*, and *Histoplasma* have not been influenced by this drug. Two common superficial fungi, *Candida albicans* and *Malassezia furfur* are not affected. Those fungi inhibited by griseofulvin reproduce only by hyphal growth so that inhibition by this antibiotic is brought about by the so-called "curling factor" as reported by Brian et al, in 1946.<sup>8</sup> Those fungi resistant to treatment with griseofulvin have an alternative method of reproduction, usually by budding.

In spite of the efficacy of griseofulvin in various fungous infections, duration and dosage of the drug is not firmly established.

MARK ALLEN EVERETT, M.D.

HERMAN D. ALSTON, M.D.

In 1951, Mark Allen Everett, M.D., graduated from the University of Oklahoma School of Medicine where he is now an Instructor in Dermatology.

Certified by the American Board of Dermatology, Doctor Everett is a member of the American Academy of Dermatology and is now serving as President of the Oklahoma State Dermatological Society. In addition, he is Consultant in Dermatology to the United States Air Force.

Herman D. Alston, Jr., M.D., a graduate of the University of Arkansas School of Medicine in 1953, is a resident in dermatology at the University of Oklahoma School of Medicine.

The following data is presented to assist in the formulation of dosage schedules.

### Report of Cases

Nineteen patients with tinea capitis and seven with generalized tinea corporis due to *T. rubrum* were treated with griseofulvin\*\* and patients were followed for a minimum of two months following cessation of therapy. Diagnoses were established by positive skin scrapings and the etiological agent was identified by culture. Three treatment schedules were followed: daily administration for 14 to 60 days; daily administration for 7-14 days followed by weekly administration; and weekly administration

\*From the University of Oklahoma Medical Center, Department of Dermatology, John H. Lamb, M.D., Chairman.

\*\*Griseofulvin (Fulvicin (R)) furnished by Schering Corp., Bloomfield, N.J.

TABLE I

## TREATMENT OF TINEA CAPITIS WITH GRISEOFULVIN

Case No.	Patients	Causative Agent	Schedule	Duration	Result	1st Neg. KOH and culture at
1.	2½ w.f.	M. canis	combined	5 weeks	cured	21 days
2.	5 w.m.	M. canis	A) weekly B) daily	4 weeks 3 weeks	failure cured	— 21 days
3.	5½ w.m.	M. canis	A) weekly B) daily	4 weeks 5 weeks	failure cured	— 14 days
4.	5 w.m.	M. canis	combined	4 weeks	cured	21 days
5.	8 w.f.	M. canis	daily	3 weeks	cured	14 days
6.	4½ w.f.	M. canis	daily	6 weeks	cured	21 days
7.	10 w.m.	M. canis	A) weekly B) daily	4 weeks 3 weeks	failure cured	— 14 days
8.	7 w.m.	M. canis	daily	5 weeks	cured	21 days
9.	5 w.m.	M. canis	combined	8 weeks	cured	21 days
10.	8 w.m.	M. canis	combined	6 weeks	cured	21 days
11.	3 w.f.	M. canis	combined	6 weeks	cured	21 days
12.	11 w.m.	T. tonsurans	daily	7 weeks	cured	28 days
13.	5 n.f.*	T. tonsurans	weekly	3 weeks	cured	28 days
14.	13 w.f.	T. tonsurans	daily	6 weeks	cured	14 days
15.	3 i.m.	T. tonsurans	daily	6 weeks	cured	21 days
16.	4 n.m.**	T. tonsurans	combined	3 weeks	failure?	—
17.	4 n.f.	T. tonsurans	daily	3 weeks	cured	14 days
18.	28 w.f.	T. schoenleini	daily	6 weeks	cured	21 days
19.	10 w.f.	T. schoenleini	daily	4 weeks	cured	21 days

\*Medication discontinued on account of nausea but patient developed kerion

\*\*Medication discontinued on account of nausea

only. Medication was continued for seven days beyond clinical and microscopic clearing of lesions. Patients were considered cured when they were clinically, microscopically and culturally free of infection two months after cessation of therapy. Daily administration consisted of 250 mg. q.i.d. to adults, t.i.d. to larger children (4-9 yrs.) and b.i.d. to small children. Single weekly

doses ranged from two to three grams, according to weight. Topical treatment was limited to clipping of fluorescent hairs in all cases of tinea capitis.

## Results

Results are tabulated in tables I and II. In *Microsporon canis* infections of the scalp, cures were obtained in all cases

TABLE II

## TREATMENT OF TINEA CORPORIS WITH GRISEOFULVIN

Case No.	Patient	Disease	Schedule	Duration	Result	1st Neg. KOH and Culture
20.	59 w.f.	Extensive T. rubrum	combined	5 weeks	cured	28 days
21.	54 w.m.	Extensive T. rubrum	daily	6 weeks	cured	21 days
22.	48 w.m.	Extensive T. rubrum	weekly	6 weeks	failure	—
23.	18 w.m.	Moderate T. rubrum	daily	4 weeks	cured	21 days
24.	22 w.m.	Moderate T. rubrum	combined	4 weeks	cured	21 days
25.	32 w.m.	Extensive T. rubrum	daily	9 weeks	cured	42 days
26.	27 w.m.	Moderate T. rubrum	daily	4 weeks	cured	14 days

in which daily therapy was administered for fourteen days and beyond, the majority of patients receiving either weekly therapy for 3-6 weeks after fourteen days, or continuous therapy for 21-42 days. Those patients with only weekly therapy or with continuous therapy shorter than ten days failed to respond. Patients with *Trichophyton tonsurans* infection were clear after six weeks of daily therapy. Two patients with *Trichophyton schoenleini* infection were clear after 28 days of continuous therapy. In extensive *Trichophyton rubrum* infections of the skin, without nail involvement, no cures were obtained with only weekly therapy, while clearing occurred after 14 days continuous therapy followed by weekly therapy for four weeks or after 28-42 days of continuous therapy.

#### Side Effects

Three patients treated in this series had ill effects from griseofulvin. Two had nausea, vomiting, and headache. One developed fever and a maculopapular eruption. The drugs were discontinued in all cases.

#### Conclusions

It is felt that while this series is limited in extent the control of dosage and extent of follow-up permits a tentative conclusion regarding the duration of therapy necessary to produce a cure in a high percent of patients treated. In *Microsporon* infections of the scalp it is suggested that 0.5 to 1.0 gm griseofulvin daily (according to weight) for 28 days should produce a cure, provided that the infected hairs are clipped off or removed as they grow out. For the less com-

mon scalp involvement due to *T. tonsurans* or *T. schoenleini* six weeks of daily therapy is advised. For extensive *T. rubrum* infections of the skin, four to six weeks of daily therapy is advised, while in more limited involvement three weeks of daily therapy is probably adequate. Although not reported in this series, those cases where nails are involved with *T. rubrum*, a much longer course of therapy (four to eight months) is needed. Results are felt to be more consistent with daily as opposed to intermittent therapy.

#### Summary

Twenty-five patients with chronic fungous infection of the scalp and body were treated with griseofulvin. From the results a tentative plan of therapy is suggested. The need for microscopic confirmation of the diagnosis in each case is emphasized by the findings.

#### BIBLIOGRAPHY

1. Gentles, J. C., "Experimental Ringworm in Guinea Pigs: Oral Treatment with Griseofulvin," *Nature*, 182: 476-477, 1958.
2. Blank, H. and Roth, F. J., *A.M.A. Arch. Derm.* 79: 259, 1959.
3. Pipkin, J. L., "Treatment of Endothrix *Trichophyton* Infections with Griseofulvin," presented at International Symposium of Griseofulvin and Dermatomyces, Miami, October 1959.
4. Harrell, E. R., "Griseofulvin in the Treatment of *Microsporon Audouini* caused tinea capitis," presented at International Symposium on Griseofulvin and Dermatomyces, Miami, October 1959.
5. Kirk, J. M., "Griseofulvin in Childhood Tinea Capitis," presented at International Symposium on Griseofulvin and Dermatomyces, Miami, October 1959.
6. Latpapi, F., "Griseofulvin in the treatment of Some Deep Mycoses," presented at International Symposium on Griseofulvin and Dermatomyces, Miami, October 1959.
7. Wilson, J. W., personal communication.
8. Brian, P. W., Curtis, P. J., and Hemming, H. C., "A Substance Causing Abnormal Development of Fungal Hyphae Produced by *Penicillium Janzewskii* Zal. I.," *Trans. Brit. Mycol. Soc.* 29: 173, 1941.

Mark Allen Everett, M.D.  
411 N.W. 11th, Oklahoma City, Oklahoma



The clinical aspects, pathologic physiology, differential diagnosis and surgical treatment of organic hyperinsulinism are discussed. Two illustrative case histories are presented.

## HYPERINSULINISM

**ORGANIC HYPERINSULINISM** is a symptom complex resulting from an excess of circulating insulin. An exogenous source may be responsible: insulin overdosage in a diabetic patient or surreptitious self administration of insulin. On the other hand, the excess insulin may be produced by a functioning tumor of the pancreatic islets of Langerhans. This entity is the condition under discussion.

The first successful removal of such a tumor was achieved by Graham in 1929.<sup>1</sup> In 1950 Howard et al<sup>2</sup> were able to collect from the world literature a total of 398 cases of which 224 had been operated. Virtually all of the signs and symptoms of organic hyperinsulinism result from a lowered fasting blood sugar. However, hypoglycemia should not be considered as being pathognomonic of hyperinsulinism for other disease entities involving organs normally participating in glucose metabolism may produce a low fasting blood sugar. A knowledge and understanding of this is essential for the differential diagnosis of the condition under discussion. The various mechanisms by which hypoglycemia may be produced are readily understood when examined in the light of

### RENE MENGUY, M.D.

Rene Menguy, M.D., graduated from the University of Paris in 1951. He is now Assistant Professor of Surgery at the University of Oklahoma Medical Center.

Certified by the American Board of Surgery, Doctor Menguy is a member of the American Federation of Clinical Research, the New York Academy of Sciences and the Southwestern Surgical Congress.

some of the physiologic processes involved in the metabolism of glucose.

### Physiological Aspects

Glucose is the chief fuel of muscular exercise and if unavailable in the diet must come from conversion of protein and fat molecules. Whereas carbohydrate is stored in the liver and tissues in the form of glycogen, the central nervous system has little glycogen. Since only glucose can be oxidized by brain tissue,<sup>3</sup> the central nervous system is absolutely dependent upon a minute by minute supply of glucose from the blood. Without any available glycogen reserve the nerve cell very rapidly loses its functional integrity in the face of hypoglycemia. This explains the rapid development of hypoglycemic symptoms when the blood sugar is

From the Department of Surgery, University of Oklahoma Medical Center and V.A. Hospital, Oklahoma City.

lowered. The mechanism of these symptoms is a depression of oxidative processes in the brain resulting in cellular damage similar to that occurring in anoxia from other causes.<sup>4,5</sup> According to Moersch and Kernohan<sup>4</sup> the most important damages noted in post mortem examinations following severe insulin reactions are nerve cell degeneration and multiple petechial hemorrhages. These changes are very similar to those seen in the brain of patients dying of cerebral anoxia.

Several regulatory agencies operate in maintaining a relatively constant level of blood sugar. One of these is the capacity of the liver to store glucose in the form of glycogen and in turn release glucose when needed. The liver also maintains the carbohydrate reserves by converting protein and fat molecules into carbohydrate.

Insulin from the pancreatic islets is the only hormone concerned with glucose metabolism that tends to lower the concentration of blood sugar. The mechanism by which this is accomplished is an increase in the peripheral utilization of glucose by the tissues. It appears that insulin accomplishes this by increasing the permeability of muscle cells to glucose.<sup>6</sup>

There is between the metabolism of carbohydrate and the adenohypophysis a relationship that has been evident clinically for some time. Although the incidence of diabetes in the general population is about 0.5%, the disease occurs in acromegalics in about 25-40% of cases.<sup>3</sup> On the other hand, hypoglycemia is often a feature of hypopituitarism. The mechanism underlying the influence of the anterior lobe of the pituitary gland on the metabolism of carbohydrate is not completely elucidated. It appears that growth hormone may inhibit carbohydrate utilization by decreasing lipogenesis from carbohydrate and acetate.<sup>7</sup> Furthermore, anterior pituitary secretion of ACTH also tends indirectly to elevate the concentration of blood sugar by stimulating the secretion of adrenocortical steroids. These hormones are effective in promoting glycogenesis. This is accomplished by increasing the rate of protein catabolism and rendering more intermediary metabolites available for con-

version into glycogen by the liver.<sup>8</sup> In practice, patients with hypopituitarism or primary hypoadrenocorticism may have a low fasting blood sugar. Also, it is well to remember that patients with pituitary insufficiency are extremely sensitive to insulin so that a small amount of insulin which would produce no noticeable effect on a normal individual may in a patient with pituitary insufficiency cause prolonged and even fatal hypoglycemia.<sup>9</sup>

The adrenal medulla also contributes to blood sugar regulation by discharging larger amounts of epinephrine when the blood sugar falls below 50 mg%. Epinephrine mobilizes the preformed stores of glycogen in the liver and muscle and rapidly elevates the blood sugar. Many of the symptoms of hypoglycemic crisis such as tremor, irritability and sweating are merely the systemic manifestations of epinephrine.

### Clinical Aspects

The signs and symptoms of hyperinsulinism are directly related to the hypoglycemic state. Moersch and Kernohan<sup>4</sup> described three stages of symptoms. The first, one of retardation, may last for ten to thirty minutes during which the patient appears mentally and physically retarded. Transitory diplopia, tremor, irritability, restlessness and confusion may be present. Drowsiness may be the only symptom. If the hypoglycemia is not averted, a stage of excitement with pallor, marked perspiration and bizarre psychic behavior ensues to be followed in turn by a phase of depression with coma during which one may find signs and symptoms of organic brain disease such as positive Babinski reflexes, motor palsy, hemiparesis, etc. These signs usually disappear after recovery from the hypoglycemia. Hypoglycemic attacks occur most frequently in the late afternoon or before breakfast. Often the attacks are precipitated by physical exertion. Patients with hyperinsulinism soon learn that they are able to alleviate or even prevent hypoglycemic attacks by eating large amounts of carbohydrate. Some patients even go to the extreme of setting their alarm clock to awaken them in the early morning hours so that they may eat and

avoid morning symptoms. As a consequence of this increased dietary intake, many patients with hyperinsulinism are obese. Whipple<sup>10</sup> found that obesity was present in 24 out of 31 patients with organic hyperinsulinism.

The preceding statements regarding the symptomatology of organic hyperinsulinism are summarized in the classical symptomatic triad known as Whipple's triad: Attacks of hypoglycemic symptoms associated with fasting or exercise, . . . accompanied by a blood sugar lower than 50 mg%, . . . and relieved by the administration of glucose.

The most important aid to the diagnosis is an awareness on the part of the physician that hyperinsulinism may be responsible for such vague and unspecific symptoms as listed in table 1. Unless the examiner entertains this possibility, he may omit to question the patient regarding the relationship of the attacks to fasting or exercise. Such a line of questioning is the key to the clinical diagnosis of hyperinsulinism. If this appears to be stressing the obvious, one need

only recall that the initial diagnosis was erroneous in 46 out of 91 cases of hyperinsulinism recently reviewed by Breidahl.<sup>11</sup> In view of the nature of the presenting symptoms it is not surprising that such diagnoses as epilepsy, psychosis or inebriation are considered. It is unfortunately true that when a patient has such diagnoses on his record the chances of his hyperinsulinism being recognized at a later date diminish. Early diagnosis of this condition is of the utmost importance because repeated hypoglycemic attacks may lead to irreversible brain damage.

Of course the alternate pitfall is a hasty diagnosis. Reasons for caution in this regard are obvious if one remembers that the only form of treatment is surgical, often of a radical nature.

Inasmuch as the fundamental objective alteration in this condition is a low fasting blood sugar, it is imperative that several blood sugar determinations be done. The diagnosis of organic hyperinsulinism is strengthened in proportion to the number of blood sugar determinations lower than 50 mg%. Occasionally the fasting blood sugar may be only equivocally lowered or even normal. This necessitates provoking a hypoglycemic attack by fasting or exercise. All food except for unsweetened tea or coffee and water is withheld from the patient until hypoglycemic symptoms appear. Rarely does one have to wait for more than a few hours. However, the fast may have to be prolonged for forty-eight to seventy-two hours before symptoms appear. As soon as the latter become evident, blood is withdrawn for blood sugar analysis and glucose is administered parenterally. If the symptoms are on the basis of hyperinsulinism, the administration of glucose should bring about their immediate relief. A hypoglycemic attack may be provoked by carefully supervised exercise on the ward. The test should be terminated as described above as soon as the first symptoms appear. In general, it is agreed that the glucose tolerance test is of little value in hyperinsulinism.<sup>12</sup> Results of the test may vary from flat to diabetic types of curves.

TABLE 1.

Signs and Symptoms Exhibited by 193 Patients with Insulinomas\*

Sign or Symptom	Per cent
Loss of consciousness	58
Confusional state	54
Weakness and fatigue	41
Deep coma	40
Sweating	36
Drowsiness and stupor	35
Lightheadedness	30
Visual Disturbances	30
Amnesia	28
Clonic convulsions	24
Noisy behaviour	20
Headache	20
Tremor	18
Hunger	14
Positive Babinski sign	13
Paresthesias	13
Irritability	11
Transient hemiplegia	10
Abdominal pain	8
Palpitation	3

\*Reprinted from Crain, E. L., Jr., and Thorn, G. W.: Functioning pancreatic islet cell adenomas; a review of the literature and presentation of two new different tests, *Medicine* 28: 427-447, 1949.



The following two cases are presented as an illustration of the relative urgency for definitive diagnosis in hyperinsulinism.

Case 1: The patient, a 39 year old white male mechanic, was admitted to the V.A. Hospital, Oklahoma City for the first time in July of 1954. The following history was obtained from his wife. He had been well until September 1953 when he began to experience recurrent attacks of unconsciousness. The first attack occurred in September 1953. While at work and just before eating his noon meal, he suddenly slumped over. He regained consciousness one hour later. A diagnosis of heat stroke was made. Two months later, while working around the house, he exhibited irrational behaviour for several minutes and then slumped over. He remained unconscious for five hours. His wife noticed some jerking of his extremities. Shortly thereafter he was hospitalized elsewhere for two weeks. No diagnosis was made. Upon returning home he had another episode during which his wife noticed clonic convulsions over the entire body. He was admitted in a coma to another hospital and remained comatose for 18 hours. During that hospitalization a diagnosis of left cerebral atrophy was made. No blood sugar determinations were done. All other laboratory studies, serology, hemogram and urinalysis were normal. The skull films were normal and the EEG pattern was not altered. He was discharged under observation for convulsive disorder. In July 1954 another attack occurred during which he remained comatose for about 30 hours before being brought to this hospital. His wife stated that since the last hospitalization he had been unable to hold a job on account of chronic fatigue.

An EEG was done and showed a slow rhythm of low amplitude over the left side suggesting a functional illness. Routine laboratory determinations were within normal limits. Blood sugar determinations were not done. A diagnosis of conversion reaction manifested by periods of amnesia and somnolence was made.

He was readmitted to this hospital in August of the same year after having been

comatose for approximately 72 hours. He was first admitted to the medical service. Because of the previous diagnosis of conversion reaction he was transferred to the psychiatry service. While on this service, the patient developed very irrational behaviour and seemed out of contact with his environment. He became more and more lethargic until he no longer responded to stimuli. He improved after parenteral and tube feeding. Except for a transitory positive Babinski reflex, the physical examination was negative. Deep tendon reflexes were active and cranial nerves were intact. No sensory impairment was noted. Spinal fluid examinations were normal. A pneumoencephalogram was interpreted as showing minimal to moderate cerebral atrophy on the left side. No blood sugar determinations were done. A diagnosis of chronic brain syndrome of unknown cause and left cerebral cortical atrophy was made.

After discharge the patient had recurrent attacks of unconsciousness lasting from fifteen minutes to four hours. In November 1954 he was hospitalized elsewhere for eight days without a definitive diagnosis being made. His last admission to this hospital was in December 1954. Five days prior to admission the patient had another attack of unconsciousness which lasted for five days during which he was either completely unconscious or in a semiconscious state. Clonic convulsions of all extremities occurred several times during this period. On the day of admission the patient was placed on the psychiatric service due to the previous diagnosis of chronic brain syndrome. The following day the patient was seen by a neurosurgical consultant and a diagnosis of possible organic brain disease was made and the patient was transferred to the neurosurgical service. A routine blood sugar determination was found to be 29 mg%. It was repeated and a level of 33 mg% was found. Following this report, the patient was given 70 ml of 50% glucose intravenously with immediate return of consciousness. A diagnosis of islet cell tumor of the pancreas was made. The patient was prepared for operation and three weeks after admission an exploratory laparotomy was carried out. A 2 cm by 1 cm round mass was palpated

anteriorly in the head of the pancreas just above the uncinate process. The mass was removed by wedge resection. On histologic examination the lesion was found to be a benign beta-cell adenoma. There were no surgical complications except for some drainage of pancreatic secretions which ceased completely after five weeks. During the remainder of his hospitalization the patient showed a gradual return of memory and a loss of irritability. His blood sugar came back to a normal level. Psychological examination demonstrated a general dysfunction in the higher, more complex mental processes. It was estimated that his intelligence had at one time been above average. Although it was considered likely that he would regain more intellectual efficiency, it was thought that he would continue to show organic impairment. The patient was discharged two months after the date of his last admission.

A social service follow-up six months later revealed that, although the patient had not had any more episodes of unconsciousness, his behaviour was still abnormal. He had temper tantrums at work and at home and remained hostile and belligerent. When agitated or excited he reacted in a hostile, explosive, impulsive manner to any demands placed upon him by his family or friends.

In spite of successful surgical removal of the functioning islet-cell adenoma the patient had a poor result because of irreversible organic brain damage brought on by repeated severe hypoglycemic attacks. Unfortunately, throughout the patient's successive hospitalizations a psychiatric diagnosis served as a "mental block."

Case 2: The patient, a 57 year old unemployed male, was admitted to the V.A. Hospital, Oklahoma City in June 1958. He gave a history of fainting, a week before admission, while getting out of bed in the morning. This happened before breakfast. He remembered waking up in the hospital. Apparently, he remained unconscious for five hours. No clonic convulsions were noticed during this time. He was discharged from the other hospital without any definitive diagnosis being made. The patient denied any previous episodes of unconsciousness, syn-

cope or convulsions. However, during the past year he had experienced episodes of blurred vision with diplopia lasting from one to thirty minutes. These attacks occurred every two weeks and subsided spontaneously. When they occurred while he was driving, he noticed that the center line of the road seemed to diverge to one or the other side of the road. The patient noticed that the attacks were worse or were more prone to occur when he missed his noon meal or had been working hard. On further questioning, he said that his memory was not as good as it had been. He also admitted that he was more irritable and nervous than he used to be and had to quit his job in a furniture factory because of differences with his employer. He had not noticed any craving for sweets but had gained approximately 20 lbs. during the past year.

The past history revealed that the patient had been discharged from the army in 1931 with the diagnosis of rheumatic heart disease.

On physical examination the patient was found to be a slightly obese, healthy looking male. Except for a grade 2 apical systolic murmur, the physical examination was negative. There were no positive neurological findings. However, it was apparent that the patient was rather vague in his answers to questions and seemed unable to focus his attention on what was going on around him.

Two days after admission, a fasting blood sugar was 52 mg%. Subsequently, 12 fasting blood sugar determinations were done. Of these, nine were below 40 mg% ; the lowest value was 26 mg%. While being fasted on the ward for the latter blood sugar determination, the patient became suddenly unconscious. Blood was withdrawn for sugar analysis and an intravenous drip of glucose in water was started. Immediate remission occurred. Three weeks after admission the patient was explored through a bilateral subcostal incision. A 1 cm by 1 cm nodule was palpated in the tail of the pancreas, approximately 4 cm proximal to the tip of the gland. A distal pancreatectomy and splenectomy were performed. Six hours after operation the blood sugar was 190 mg% and glucosuria was present. Insulin



was required for forty-eight hours. The post operative course was uncomplicated. On histologic examination the lesion was found to be a benign beta-cell adenoma of the pancreas.

The patient has been asymptomatic since the operation. His memory has returned completely and he has had no further episodes of weakness or of blurred vision.

It is obvious that the only difference between the two cases was the prompt diagnosis made in the latter case by the Medical Service. This is what leads to a full recovery after operation.

### Differential Diagnosis

A) Endogenous hyperinsulinism due to a functioning pancreatic tumor must be differentiated from unrecognized exogenous hyperinsulinism produced by the surreptitious self administration of insulin.<sup>13</sup> Obviously such patients have signs and symptoms that are identical to those present in the condition under discussion. Often these individuals submit to repeated surgical procedures which compound the difficulty of making the proper diagnosis. The only clue is the discovery of insulin or syringes in the patient's room. One should think seriously of this possibility when dealing with patients such as nurses or relatives of diabetics who have had some experience with insulin. The recognition of chronic insulin overdosage in a diabetic should not be a problem.

B) As was mentioned above, the physiology of glucose metabolism is such that disease processes involving glands or organs other than the pancreas may produce a low fasting blood sugar.

Severe liver disease with failure of gluconeogenesis is an occasional cause of spontaneous hypoglycemia. Mann and McGath<sup>14</sup> originally observed that one of the most striking effects of hepatectomy in the dog was a profound depression of blood sugar resulting in hypoglycemic coma and death. In clinical practice, the recognition of hepatogenic hypoglycemia should not be difficult. In patients with massive liver metastases, with far advanced cirrhosis, with terminal infectious hepatitis, the hypoglycemic manifestations are usually overshadowed

by other obvious evidence of severe liver disease.

Patients with pituitary insufficiency are prone to have a low fasting blood sugar. The other signs of the syndrome should enable one to rule out hyperinsulinism. These patients are extremely sensitive to insulin and if an insulin sensitivity test is contemplated only very small amounts of insulin should be used.

The Addisonian patient often has a low blood sugar. The pigmentation, low blood pressure and characteristic electrolyte abnormalities should point to the correct diagnosis. Needless to say, the consequences of surgical exploration in search of a non-existent insulinoma in a patient with unrecognized Addison's disease could be catastrophic.

Finally, there is an ill defined group of patients suffering from a condition known as functional hypoglycemia. The symptoms are similar to those of organic hyperinsulinism. However, they are generally of a mild degree and consist mainly of attacks of weakness and dizziness. The symptoms may last for years and do not increase in severity from one year to the next in contrast to those of hyperinsulinism in which the symptoms progress steadily. As has been stressed by Keating and Wilder,<sup>15</sup> the symptoms of functional hypoglycemia occur several hours after meals whereas those of hyperinsulinism are brought on by fasting. Furthermore the blood sugar usually remains over 50 mg% even during an attack. A glucose tolerance test is useful in that it may reproduce the symptoms and reveal a sharp dip in blood sugar associated with the symptoms during the second to fourth hour of the test. The symptoms improve if the patient is placed on a high protein, low carbohydrate diet. Characteristically, patients with functional hypoglycemia are emotionally labile. Hypoglycemia of a functional nature is also an occasional complication of gastric operation. Patients in whom a gastric resection or gastro-enterostomy have been performed may develop hypoglycemic symptoms several hours after a meal. All patients who have had this type of operation have a glucose tolerance test characterized by an initial



hyperglycemia to diabetic levels with a delayed and sharp drop in the concentration of blood sugar. However, in only a small percentage of patients will this delayed hypoglycemia be symptomatic. The symptoms should be distinguished from those of the dumping syndrome which are manifest immediately after a meal.

Although islet cell adenomas have been removed from infants, it remains true that hypoglycemic states in infants and children are less likely to be due to a functioning pancreatic tumor that they are in the adult. Idiopathic hypoglycemia of children or McQuarrie's disease is of hereditary origin and thought to be due to an absence of alpha cells in the islets of Langerhans.<sup>16</sup> Since these cells appear to produce a hyperglycemic-glycogenolytic factor (Glucagon), their absence may be responsible for the hypoglycemia. ACTH was found by McQuarrie to be extremely effective in controlling hypoglycemic symptoms in these children as long as it was administered.

#### Treatment

The treatment of hyperinsulinism is surgical removal of the hyperfunctioning islet cell tumor of the pancreas. In our opinion, the fundamental prerequisite to surgical treatment of this lesion is an absolute confidence on the part of the operating surgeon in the clinical diagnosis prior to submitting the patient to laparotomy. The surgeon should participate in the clinical work up of the patient in order that he may open the abdomen not for the purpose of finding out if a tumor is present but of removing the tumor that he knows is present. Frequently the offending lesion is far from obvious and its discovery and removal may require major surgical maneuvers. It is unfortunately true that these patients often undergo several half hearted surgical explorations before the lesion is finally found and removed.

Glucose, in the form of 10% glucose in water should be given before and during the operation. The prolonged preoperative fast and the increased liberation of insulin from the tumor incident to its manipulation may lead to a dangerously low blood sugar level.

The abdomen is opened through a bilateral subcostal incision with division of both recti. The gastro-colic ligament is incised widely. Attention is directed first to the body and tail of the pancreas since the majority of insulinomas are in this location. In the absence of a palpable tumor on the surface of the gland, the peritoneum along the inferior margin of the pancreas is incised and the body and tail mobilized with gentle finger dissection. This maneuver enables one to palpate the tail and body of the pancreas between the thumb and fingers up to the level of the mesenteric vessels. An adenoma, when present, can be felt as a rounded mass of a consistency slightly firmer than that of the pancreas. In the event of negative exploration of the distal portion of the pancreas, the head of the gland and surrounding duodenum are mobilized by division of the peritoneum along the lateral border of the second portion of the duodenum (Kocher's maneuver). With finger dissection the pancreatic head is separated from the posterior planes to the level of the mesenteric vessels medially. The gland can then be palpated between the thumb and fingers. Care must be taken not to overlook the uncinate process during this part of the exploration. If nothing is found in the head of the pancreas, the search is directed towards the common sites of pancreatic heterotopia where aberrant pancreatic insulinomas are occasionally found. These are the duodenal wall, the wall of the gastric antrum, the gastro-splenic omentum, the hilum of the spleen and the retroperitoneal tissues between the head of the pancreas and the liver. Howard et al<sup>12</sup> from a collected series of 398 cases reported a 2% incidence of ectopic islet cell tumors.

In approximately 75% of the cases the tumor is located in the body and tail of the gland.<sup>2</sup> In approximately 10% of cases the lesion is a functioning islet cell carcinoma.<sup>11</sup> Multiple tumors have been reported in from 2% to 10% of cases.<sup>2</sup> In relation to the multiplicity of islet cell tumors, it seems worthwhile to mention the existence of multiple endocrine tumors of which at least 22 cases have been reported in the world literature.<sup>17</sup> These patients had adenomas of the pituitary body, the parathyroid glands and the pancreas or had tumors in some combina-

tion of two of these glands. Multiple pancreatic islet cell adenomas were present in eight such cases reported from the Mayo Clinic.<sup>18</sup> Because of the high incidence of multiple tumors it is imperative that one should proceed with careful exploration of the entire gland even when a tumor has been found immediately.

The size of islet cell adenomas is rarely greater than 2 cm in diameter.<sup>11</sup> Unfortunately for the operating surgeon small tumors are not uncommon. At least one instance of an adenoma 2 mm in diameter has been reported.<sup>19</sup> The tumor was removed during a blind subtotal pancreatectomy and was not found during a routine pathologic examination of the specimen. Only several years later was the lesion found during serial sectioning of the specimen. In the meantime the patients symptoms had been cured.

In some cases no tumor can be found after a careful exploration. The incidence of negative explorations varies from 16% to 35%.<sup>20</sup> This incidence can be kept at a minimum by following rigorous criteria for the preoperative diagnosis of hyperinsulinism. Diffuse hyperplasia of the islets of Langerhans has been suggested as a possible cause of hyperinsulinism particularly in the cases where there has been a negative exploration.<sup>21</sup> However, there is no evidence to suggest that such an entity exists.<sup>22</sup>

The management of the lesion is directed by the findings. In view of the relatively high incidence of malignant changes in islet cell tumors, many authors agree that a lesion in the tail of the gland is best treated by a conservative distal pancreatectomy, thus encompassing the lesion rather than enucleating it.<sup>20</sup> But when an adenoma is situated in the head of the pancreas, the advantages of this "tumor approach" are outweighed by the high mortality (as high or higher than the incidence of malignant insulinomas) and morbidity of pancreaticoduodenal resection. In such a situation, simple enucleation or wedge resection is the procedure of choice. Of course, when one is faced with a frank islet cell carcinoma with metastases, it is justifiable to remove as much of the primary as possible in an effort

to palliate otherwise uncontrollable hypoglycemic symptoms. When a thorough exploration fails to reveal a palpable lesion, one surmises that the tumor is too small to be detected by palpation (assuming that preoperative criteria for hyperinsulinism have been rigorously followed). Because of the high probability of the lesion being in the tail or body of the pancreas, the portion of the gland situated to the left of the mesenteric vessels should be removed.<sup>11</sup> Frequently, following such a "blind" resection, one is gratified by finding a minute adenoma in the surgical specimen and by the subsequent disappearance of the patient's symptoms. If the latter persist after a blind distal pancreatectomy, there is no alternative other than to reexplore the patient and in the event of another negative exploration, to resort to removal of the remainder of the gland. Fortunately, such an eventuality presents itself only infrequently. However, it should be emphasized that the management of diabetes following total pancreatectomy is less of a problem than the management of severe hyperinsulinism.<sup>23</sup>

Postoperatively all of the patients have a transitory diabetes lasting for twenty-four to seventy-two hours. This phenomenon, i.e., the depression of the function specific to the tumor, is common to all endocrine tumors following their removal. Sufficient insulin to cover the glucose in the intravenous infusion should be given. Dehydration should be prevented for these patients may have a greater urinary output during the early postoperative period than the average surgical patient.

### Results of Treatment

In the majority of instances, the results of surgical treatment are excellent. This is particularly true of those cases in which the lesion is found at exploration, is single and benign, and can be removed by a partial pancreatectomy. Good late results under such circumstances can be expected in about 90% of cases.<sup>11</sup> When a blind distal pancreatectomy is performed because of failure to find a lesion, approximately 60% of the patients are cured of their symptoms.<sup>24</sup> The results



of surgical treatment of islet cell carcinomas are uniformly poor.<sup>20</sup>

## BIBLIOGRAPHY

1. Graham, R. R.: Quoted by Goldwain Howland, W. R. Campbell, E. J. Maltby and W. L. Robinson: Dysinsulinism: Convulsions and Coma due to Islet Cell Tumor of the Pancreas. *J.A.M.A.*, 93: 674, 1929.
2. Howard, J. M., N. H. Moss and J. E. Rhoads: Hyperinsulinism and Islet Cell Tumors of the Pancreas: With 398 recorded tumors. *Internat. Abstr. Surg.*, 90: 417, 1950.
3. Soskin, S., and Levine, R.: Carbohydrate Metabolism. Ed. 2, Chicago, University of Chicago Press, 1952, 336 pp.
4. Hoff, E. C., Grenell, R. G., and Fulton, J. F.: Histopathology of the central nervous system after exposure to high altitudes, hypoglycemia and other conditions associated with central anoxia. *Medicine*, 34: 161, 1945.
5. Moersch, F. P., and Kernohan, J. W.: Hypoglycemia: neurologic and neuropathologic studies. *Arch. Neurol. & Psychiat.* 39: 242, 1938.
6. Levine, R., Goldstein, M. S., Huddleston, B. and Klein, S. D.: Action of insulin on the permeability of cells to free hexoses as studied by its effect on the distribution of galactose. *Am. J. Physiol.*, 163: 70, 1950.
7. Wilhelmi, A. E.: Hormonal factors in carbohydrate metabolism. *Ciba Foundation Coll. on Endocrinology*, 6: 70, 1953.
8. De Bodo, R. C., and Sinkoff, M. W.: Anterior pituitary and adrenal hormones in the regulation of carbohydrate metabolism. *Rec. Prog. Horm. Research*, 8: 511, 1953.
9. Houssay, B. A.: The hypophysis and carbohydrate metabolism. *New Eng. J. Med.*, 214: 971, 1936.
10. Whipple, A. O., and Frantz, V. K.: Adenoma of islet cells with hyperinsulinism: A Review. *Ann. Surg.*, 101: 1299, 1935.
11. Breidahl, H. D., Priestley, J. T., and Rynearson, E. H.: Hyperinsulinism: Surgical aspects and results. *Ann Surg.*, 142: 698, 1955.
12. Crain, E. L., Jr., and Thorn, G. W.: Functioning pancreatic islet cell adenomas; a review of the literature and presentation of two new differential tests. *Medicine*, 28: 427, 1949.
13. Conn, J. W., Johnston, M. W., and Conn, E. S.: Hyperinsulinism of an unusual type; a metabolic study. *Ann. Int. Med.*, 24: 487, 1946.
14. Mann, F. C., and Magath, T. B.: Studies on the physiology of the liver. 11. The effect of the removal of the liver on the blood sugar level. *Arch. Int. Med.*, 30: 73, 1922.
15. Keating, F. R., Jr., and Wilder, R. M.: Spontaneous hypoglycemia: report of cases. *South. J. Med. Surg.*, 103: 125, 1941.
16. McQuarrie, I., Bell, E. T., Zimmerman, B., and Wright, W. S.: Deficiency of alpha cells of pancreas as possible etiological factor in familial hypoglycemia. *Fed. Proc.*, 9: 337, 1950.
17. Shelburne, S. A., and McLaughlin, C. W.: Coincidental adenomas of islet cells, parathyroid glands and pituitary gland. *J. Clin. Endocrinol.*, 5: 232, 1945.
18. Underdahl, L. O., Woolner, L. B., and Black, B. M.: Multiple endocrine adenomas: report of 8 cases in which the parathyroids, pituitary and pancreatic islets were involved. *J. Clin. Endocrinol. and Metabol.*, 13: 20, 1953.
19. Lopez-Kruger, R., and Dockerty, M. B.: Tumors of islets of Langerhans. *Surg., Gynec. & Obst.*, 85: 495, 1947.
20. Cattell, R. B., and Warren, K. W. *Surgery of the Pancreas*. W. B. Saunders, 1953, 374 pp.
21. McQuarrie, I.: Idiopathic spontaneously occurring hypoglycemia in Infants. *A.M.A. Am. J. Dis. Child.* 87: 399, 1954.
22. Warren, S., and Le Compte, P. M.: *The Pathology of Diabetes Mellitus*. Ed. 3, Philadelphia, Lea and Febiger, 1952, 336 pp.
23. Priestley, J. T., Comfort, M. W., and Sprague, R. G.: Total pancreatectomy for Hyperinsulinism due to Islet cell adenoma; follow up report five and one-half years after operation, including metabolic studies. *Ann. Surg.*, 130: 211, 1949.
24. David, V. C., and Campbell, L. K.: Experiences in subtotal resection of pancreas in hypoglycemia. *Ann. Surg.*, 123: 836, 1946.

924 N.E. 13th, Oklahoma City, Oklahoma

## ABSTRACTS

### Canine Atherogenesis Following $I^{131}$ Administration and Cholesterol Feeding

I. G. GONZALEZ,\* L. N. NORCIA,\*\* M. R. SHET-LAR,\*\*\* C. W. ROBINSON,\*\*\*\* L. L. CONRAD\*\*\*\*\* and R. H. FURMAN,\*\*\*\*\*

American Journal of Physiology, 197: 413-422, 1959

Atherogenesis in  $I^{131}$ -treated cholesterol-fed dogs was evaluated utilizing tissue lipid and polysaccharide, serum lipid and lipoprotein analyses. Coronary artery lesions antedated aortic lesions and both were characterized first by ground substance change without lipid accumulation. Lipids other than cholesterol then appeared, associated with varying degrees of cellular proliferation, subintimal hemorrhage and involvement of vasa vasorum and media. Marked cholesterol but not phospholipid accumulation characterized late lesions. Metachromasia was noteworthy only in fibrotic lesions. Aortic tissue hexose and hexosamine values

usually were normal. Liver analyses revealed increased glycogen, especially in animals with marked reduction in high density serum lipoproteins. These animals also had highest concentrations of serum cholesterol, lipid P and lower density lipoproteins, and the most severe atheromata. Serum C/P ratios increased with increasing cholesterol levels. At serum cholesterol levels above 1000 mg %, the increments in C/P ratios were relatively smaller. Hypercholesterolemia in excess of 450% for one year appears requisite to atherogenesis in the  $I^{131}$ -treated cholesterol-fed dog, while comparable hypercholesterolemia in  $I^{131}$ -treated dogs not fed cholesterol does not lead to atheroma formation.

\*Department of Pathology, University of Alabama School of Medicine.

\*\*Assistant Professor of Research Biochemistry.

\*\*\*Associate Professor of Biochemistry.

\*\*\*\*Medical Resident.

\*\*\*\*\*Assistant Professor of Medicine.

\*\*\*\*\*Associate Professor of Research Medicine.



## **Serum Lipid, Lipoprotein and Vascular Tissue Studies in Cholesterol-Fed Horse**

L. N. NORCIA,\* W. JOEL,\*\* and R. H. FURMAN.\*\*\*

Proceedings of the Society for Experimental Biology and Medicine, 100: 759-761, 1959

A diet containing 1.7-2% cholesterol did not alter serum lipid or lipoprotein levels when fed to a gelded horse for three months. When cholesterol supplementation was discontinued, significant increases in serum total and free cholesterol, lipid phosphorus, C/P ratio and high density -S<sub>1.21</sub>0-20 ("alpha") lipoproteins occurred which persisted until sacrifice three months later. Fecal lipid analyses indicated net cholesterol absorption in excess of 70%. Liver and aortic lipid analyses and histologic examination of myocardium, coronary arteries and aorta were not remarkable.

\*Assistant Professor of Research Biochemistry.

\*\*Professor of Pathology.

\*\*\*Associate Professor of Research Medicine.

## **The Effect of Bilateral Pulmonary Resection of Total Oxygen Uptake and Pulmonary Hemodynamics in the Dog**

MICHAEL T. LATEGOLA,\* WALTER MASSION,\*\* and JOHN A. SCHILLING,\*\*\* Oklahoma City, Okla.

The Journal of Thoracic Surgery 37, 606-610, 1959

The V<sub>O2 T</sub> and Q-T are only slightly and insignificantly altered following 56.5 per cent bilateral resection of the whole lung. The PAP and R-T are increased following both resections but disproportionally increased following the second resection.

\*Assistant Professor of Physiology.

\*\*Research Associate in Anesthesiology.

\*\*\*Professor of Surgery.

## **Quantitative Response of the Rat Ovary To Pituitary Gonadotropin as Modified By Estrogen**

R. W. PAYNE\* and R. H. RUNSER.\*\*  
Endocrinology, 65: 383-388, 1959

A purified pituitary gonadotropin containing predominantly FSH activity was administered in graded doses to hypophysectomized and intact immature female rats, with and without concurrent administration of diethylstilbestrol in large doses.

A more striking and consistent ovarian weight increase to pituitary gonadotropin, brought about through stimulation of early ovarian follicle development, regulation of further follicular progression, and depression of interstitial tissue overgrowth was observed in the diethylstilbestrol-treated hypophysectomized animals.

\*Associate Professor of Pharmacology and Instructor in Medicine.

\*\*Intern, Mary Imogene Bassett Hospital, Cooperstown, New York.

## **Wound Healing: Glycoproteins of Wound Tissue I. Studies of Hexosamine, Hexose, and Uronic Acids Content**

M. R. SHETLAR,\* EUGENIA G. LACEFIELD,\*\* BETTY N. WHITE,\*\*\* and JOHN A. SCHILLING,\*\*\*\*

Proceedings of the Society for Experimental Biology and Medicine 100: 501-503, 1959

A serial study of uronic acid, hexosamine, and hexose content of wound repair tissue was made. Uronic acid content was quite low in the seven-day sample, but increased until about 28 days. Hexosamine in considerable excess of uronic acid was found indicating presence of polysaccharides or glycoproteins which did not contain uronic acid. Sugars with electrophoretic mobility in borate buffer of galactose, mannose, and glucose were identified in hydrolysates of wound repair tissue.

\*Associate Professor of Biochemistry, University of Oklahoma Medical School.

\*\*Technician, Department of Biochemistry.

\*\*\*Research Technician, Department of Surgery.

\*\*\*\*Professor of Surgery

## **Poliomyelitis Problems in the Post-Vaccine Era**

HARRIS D. RILEY, Jr.,\* and RANDOLPH BATSON

Southern Medical Journal, 52: 127-135, 1959

Physicians have been inclined to accept poliomyelitis vaccination as insurance against future problems with this disease. This has been a summary of the difficulties that will continue to exist in a population immunized largely with killed-virus vaccine. Suggestions for counteracting these problems have been made.

\*Professor and Chairman, Department of Pediatrics.

## **In Vitro Activation by Tocopherol of the Synthesis of Ascorbic Acid by Liver Extracts Of Tocopherol-Deficient Rats**

PAUL B. McCAY,\* MARY P. CARPENTER,\*\* ABBAS E. KITABCHI,\*\*\* and RANWEL CAPUTTO,\*\*\*\*

Archives of Biochemistry and Biophysics, 82: 472-473, 1959

\*Instructor in Research Physiology.

\*\*Biochemist, Oklahoma Medical Research Foundation

\*\*\*Research Associate, Oklahoma Medical Research Foundation.

\*\*\*\*Associate Professor of Research Biochemistry.

## **Non-Hypocholesterolaemic Action of Nicotine Acid in Dogs**

L. N. NORCIA,\* H. J. BROWN,\*\* and R. H. FURMAN.\*\*\*

Lancet 1: 1255, 1959

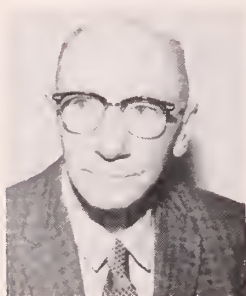
\*Assistant Professor of Research Biochemistry.

\*\*Intern, Walter Reed Hospital, USAF.

\*\*\*Associate Professor of Research Medicine.

## Heatley Named Professor Emeritus

The Alumni Association of the University of Oklahoma School of Medicine honored John E. Heatley, M.D., Oklahoma City, as Professor Emeritus of the Year during the annual banquet meeting October 25 at the Skirvin Tower Hotel, Oklahoma City.



HEATLEY

John R. Taylor, M.D., Kingfisher, former president-elect, was installed as Association president, succeeding Carl H. Bailey, M.D., Stroud.

Doctor Heatley, a former chairman of the Department of Radiology, was appointed professor emeritus of diagnostic radiology in 1949. Ill health prevented his attending the program and James R. Reed, M.D., Oklahoma City, received the plaque for him.

A "Professor Emeritus" plaque also was presented Wann Langston, M.D., professor emeritus of medicine, who was cited in 1957. The practice of presenting plaques to the honorees was not started until last year and Doctor Langston was in Europe when the presentation to past honorees was made at the 1958 session.

Alumni voted to abolish the office of president-elect. They re-elected W. F. Lewis, M.D., Lawton, vice-president and Samuel T. Moore, M.D., Oklahoma City, secretary; and elected Wayne A. Starkey, M.D., Altus, treasurer.

Four new trustees also were named. They are Hillard E. Denyer, M.D., Bartlesville, representing District 7; O. L. Parsons, M.D., Lawton, District 23; Malcolm Mollison, M.D., Altus, District 24; and William T. Snoddy, M.D., Oklahoma City, District 28.

Five-year reunion classes, beginning with the Class of '09, were introduced. Sole member of the Class of 1909 attending was Charles R. Hulen, M.D., Ardmore. Joseph T. Phelps, M.D., El Reno, represented the Class of 1919.

## Regents Appoint Worsham and Hudnut

Two appointments to the School of Medicine faculty were approved by University of Oklahoma Regents at their October meeting.



WORSHAM

Bertrand Ray Worsham, M.D., was named clinical assistant in psychiatry, neurology and behavioral sciences, and Herbert Beecher Hudnut, Jr., M.D., was appointed visiting lecturer in preventive medicine and public health.

Doctor Worsham received his M.D. degree in 1955 from the University of Arkansas School of Medicine. He interned at Hillcrest Medical Center, Tulsa, and took residency training at Menninger School of Psychiatry, Topeka, from 1956 to 1958 and at the OU Medical Center from 1958 to 1959.

Doctor Hudnut, a 1957 graduate of Harvard Medical School, interned in medicine and served a one year medical residency at Mary Imogene Bassett Hospital, Cooperstown, N.Y.



HUDNUT

He has participated with Doctor William Jaques, chairman of the Department of Pathology, in studies of the relation of atrial pathology to cardiac arrhythmias. Research also includes analyzing data from the Carter county cardiovascular screening program conducted in 1958.

### THIRD OKLAHOMA COLLOQUY


on

### ADVANCES IN MEDICINE

March 24, 25, 26, 1960

University of Oklahoma Medical Center





when you see  
signs of  
anxiety-tension  
specify

**Dartal**<sup>®</sup>  
dihydrochloride  
brand of thiopropazate dihydrochloride

*for rapid relief of anxiety manifestations*

You will find Dartal outstandingly beneficial in management of the anxiety-tension states so frequent in hypertensive or menopausal patients. And Dartal is particularly useful in the treatment of anxiety associated with cardiovascular or gastrointestinal disease, or the tension experienced by the obese patient on restricted diet. You can expect consistent results with Dartal in general office practice.

*with low dosage:* Only one 2, 5 or 10 mg. tablet t.i.d. *with relative safety:* Evidence indicates Dartal is not icterogenic.

Clinical reports on Dartal: 1. Edisen, C. B., and Samuels, A. S.: A.M.A. Arch. Neurol. & Psychiat. 80:481 (Oct.) 1958.  
2. Ferrand, P. T.: Minnesota Med. 41:853 (Dec.) 1958.  
3. Mathews, F. P.: Am. J. Psychiat. 114:1034 (May) 1958.

SEARLE





We Wish You  
**a Merry Christmas**  
and a Happy New Year

*The Agnes T. Bakers*

# Coming Meetings

## UNIVERSITY OF OKLAHOMA MEDICAL CENTER POSTGRADUATE PROGRAM\* Individual Postgraduate Courses

BASIC ELECTROCARDIOGRAPHY—February 29 through March 5.

OPHTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 3 and 4.

OBSTETRICS-GYNECOLOGY SYMPOSIUM—March 5.

ADRENAL STEROIDS—March 24, 25, and 26. (Third Oklahoma Colloquy on advances in Medicine.)

ORTHOPEDIC SYMPOSIUM—May 13 and 14.

CARCINOMA OF THE SKIN—April 22 and 23. (Sixth Annual Combined Surgery, Radiology, Pathology Symposium.)

OKLAHOMA ASSOCIATION OF HOUSE STAFF PHYSICIANS—May 6.

PEDIATRIC NEUROLOGY—May 12 and 13. This symposium to be held in conjunction with the Wednesday Short Course on May 11.

## SERIAL POSTGRADUATE COURSE

Postgraduate Division

Oklahoma City, Oklahoma  
1959-1960

Wednesday Short Courses

3:30 to 8:30 p.m.

Jan. 13 Carl Puckett Memorial Lecture and Infectious Diseases Symposium  
Guest Lecturer: William Tucker, M.D., Washington, D.C.

Feb. 10 Rehabilitation of the Cardiac Patient

Mar. 9 C. B. Taylor Lectureship and Urology Symposium—Guest Lecturer to be announced

Apr. 13 Anesthesia for the Part-time Anesthetist

May 11 Neurological Diseases in Childhood

June 8 Surgery

\*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

## OKLAHOMA CHAPTER AMERICAN ACADEMY OF GENERAL PRACTICE

February 15-16, 1960

Tulsa Hotel

Tulsa, Oklahoma

The 12th Annual Meeting of the Oklahoma Chapter of the American Academy of General Practice will be held at the Tulsa Hotel, February 15-16, 1960, in Tulsa.

## EIGHTH POSTGRADUATE COURSE IN

DIABETES AND BASIC METABOLIC PROBLEMS

January 20, 21, 22, 1960

Ambassador Hotel

Los Angeles, California

The Eighth Postgraduate Course in Diabetes and Basic Metabolic Problems will be offered by the American Diabetes Association, January 20, 21, 22, 1960 at the Ambassador Hotel in Los Angeles. The course is accepted for 18 hours credit, Category II, by the American Academy of General Practice. Detailed information is available by writing to American Diabetes Association, Inc., 1 East 45th Street, New York 17, New York.

## AMERICAN COLLEGE OF ALLERGISTS

Graduate Instructional Course and Annual Congress

February 28-March 4, 1960

The Americana Hotel

Bal Harbor

Miami Beach, Florida

The American College of Allergists will hold a Graduate Instructional Course and Annual Congress February 28 to March 4, 1960 at the Americana Hotel, Bal Harbor, Miami Beach, Florida. For further information, contact John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

## THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

March 7-10, 1960

Roosevelt Hotel

New Orleans, Louisiana

The twenty-third annual meeting of The New Orleans Graduate Medical Assembly will be held March 7-10, 1960 in New Orleans. Complete details may be obtained by writing to Mannie D. Paine, Jr., M.D., Secretary, The New Orleans Graduate Medical Assembly, 1430 Tulane Avenue, New Orleans 12, Louisiana.

## AMA Names Martin As GP of the Year

ONE OF OKLAHOMA'S most beloved physicians has been selected as the nation's outstanding family physician by the American Medical Association.

Chesley M. Martin, M.D., seventy-year-old Elgin physician, was named the 1959 General Practitioner of the Year by the AMA's House of Delegates during its Thirteenth Clinical Session in Dallas, December 1-4.

The award is given each year to the doctor who exemplifies the collective image of the thousands of family physicians who not only dedicate their lives to their profession, but also exhibit exceptional qualities of community service and good citizenship.

Doctor Martin's accomplishments as a physician and citizen are legendary among the townspeople of Elgin and the surrounding communities as well. Throughout his forty-four years of medical practice, he has unselfishly waged a battle against illness and still found time to serve his profession and his community in countless capacities of leadership.

Chesley Martin's qualities have long been recognized by his many friends and patients. Now, through the efforts of the Comanche-Cotton District Medical Society, physicians and citizens of the United States pay tribute for a job well done.



## Gold Medal Presented Before Five Hundred



Doctors Martin and Orr are pictured during the award ceremonies.

Doctor Martin's greatest moment came when Louis M. Orr, M.D., President of the American Medical Association, presented a gold medal and designated him as "America's Family Physician." The event took place before nearly five hundred AMA Delegates and guests at the opening session of medicine's top policy-making body.

On hand to share Doctor Martin's triumph were nineteen proud members of his immediate family. Following a brief visit with well-wishers and a series of press interviews, the surprised physician flew to California for an appearance on the Art Linkletter show.



Shortly after receiving his gold medal, Doctor Martin found time to visit with his wife and a few of their ten grandchildren.

# A Big Job in



A RURAL HOUSE CALL, fifteen miles from Elgin. The physician owns two used automobiles, only to be insured against breakdowns which would immobilize him.



COMANCHE SQUAW, 69 year-old Sally Sovo, receives attention in her home. Doctor Martin cares for twenty-five Indian families who live in the rolling hills around Elgin.



PREVENTIVE HEALTH. Thomas Chibitty receives a periodic check up, as do the other five hundred enrollees of the Elgin school system.

With a work schedule that would try the endurance of a young man, the General Practitioner of the Year has little time for himself. Doctor Martin still spends twelve hours a day, six days a week in the practice of medicine.

The territory he serves is almost boundless, and his able willingness to answer the needs of patients scattered throughout Comanche County has not only endeared him in the hearts of several generations of grateful citizens, but has also resulted in unparalleled respect from his professional colleagues.



SPRAWLING ELGIN is situated in the ranching country of Southwestern Oklahoma. Thirteen miles north of Lawton, many of its 450 residents hold Civil



OFFICE EXAMINATION is conducted in 31-year-old office on Main Street. The physician also owns and operates the town pharmacy.



# a Small Town

Despite his continuous professional responsibilities, he is the unchallenged "first citizen" of Elgin. The new school buildings, the twelve hundred seat gymnasium, the Future Farmers of America barn and the Methodist Church and parsonage stand as monuments to his accomplishments as a civic leader, architect and builder.

Elgin, Oklahoma found a friend when Doctor Martin came to town in 1916. Its health has been safeguarded, its necessary community facilities have been built and its citizenry has been inspired by this humble, dedicated man!



Service jobs at Fort Sill, while others are ranchers or workers in nearby rock quarries. Large structures in the right foreground are school buildings.



**FRIEND TO YOUTH.** Doctor Martin is shown examining a prize calf. He helped students get a large barn for FFA work.



**MARTIN-DESIGNED** Methodist Church is Elgin's most beautiful building. He is shown here listening as Mrs. Harry Leonard practices on the organ he donated.



**STANDING IN VAST GYMNASIUM,** Martin surveys his work. He designed and supervised the construction of the gym in 1949, at the modest cost of \$40,000. It seats twelve hundred.



**EDUCATIONAL LEADER.** Elgin's physician-School Board Chairman is shown discussing problems with Superintendent Arthur Farrar. Ph.D.



LEDERLE INTRODUCES...

# a masterpiece



greater antibiotic activity

Milligram for Milligram, DECLOMYCIN exhibits 2 to 4 times the activity of tetracycline against susceptible organisms. (*Activity level is the basis of comparison—not quantitative blood levels—since action upon pathogens is the ultimate value.\**) Provides significant higher serum activity level...

with far less antibiotic intake

DECLOMYCIN demonstrates the highest ratio of prolonged activity level to daily milligram intake of any known broad-spectrum antibiotic. Reduction of antibiotic intake reduces likelihood of adverse effect on intestinal mucosa or interaction with contents.

unrelenting peak  
antimicrobial attack

The DECLOMYCIN high activity level is uniquely constant throughout therapy. Eliminates peak-and-valley fluctuation, favoring continuous suppression. Achieved through remarkably greater stability in body fluids, resistance to degradation and a low rate of renal clearance.

•Hirsch, H. A., and Finland.  
*New England J. Med.* 260:  
(May 28) 1

# DECLOMYCIN

Demethylchlortetracycline Lederle

# of antibiotic design



plus  
"extra-  
day"  
activity

FOR PROTECTION  
AGAINST  
RELAPSE

DECLOMYCIN maintains activity for one to two days after discontinuance of dosage. Features unusual security against resurgence of primary infection or secondary bacterial invasion—two factors often resembling a "resistance problem"—enhancing the traditional advantages of tetracycline . . . for greater physician-patient benefit

in the distinctive dry-filled,  
duotone capsule

immediately available as:  
DECLOMYCIN Capsules, 150 mg.,  
bottles of 16 and 100. Adult dosage:  
1 capsule four times daily.

# MYCIN<sup>®</sup>



LEDERLE LABORATORIES  
a Division of  
AMERICAN CYANAMID COMPANY  
Pearl River, New York

## COUNCIL LIKES BLUE SHIELD PLAN FOR SENIOR CITIZENS

Culminating nearly a year of investigation and development of an insurance or prepayment plan for the "senior citizen," OSMA's Council, in a special session on Sunday, November 22, approved a Blue Shield "indemnity" proposal, referring it to the House of Delegates for final ratification.

Committee action in this regard has been continuous since early 1959, but the "service plan" approach had thus far prevented Council or Delegates' approval.

### Flash Back

Following a request by the American Medical Association (December 1958) that "... the AMA, the constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the group over sixty-five with modest resources or low family income," the Council and the House of Delegates, in April of this year, heard a report from OSMA Committee on Health Care of the Aged which called for the development of such a plan. A more specific request from a joint committee, representing the Blue Shield Liaison Committee and the Insurance and Retirement Sub-Committee of the Health Care of the Aged Committee, was also presented and approved. Consequently, Alfred T. Baker, M.D., newly-installed President of OSMA, set the joint group in action to develop a detailed program for the over-sixty-five group.

In a called meeting of the House of Delegates on August 2, the policy-making body disapproved a "service plan" proposal outlined by the joint committee. Principle opposition to the measure came from those who questioned the wisdom of self-commitment to a below-par fee schedule. It was the majority feeling that such a concession, even on behalf of the elderly, would inadvertently lead the public to believe that the reduced fees would be an acceptable rate of pay for other special interest groups.

The committee was instructed to continue its study along indemnity lines and to devote

its effort to the development of a program for physician services, without assuming responsibility for hospital coverage.

Doctor Baker added several additional physicians to the committee and requested that the group get underway along the lines requested, as soon as possible. After considering many alternatives, the committee requested that the Blue Shield Board simply increase the age limits on the Blue Shield 200 Contract, with corresponding reductions in benefits to permit a realistically priced plan.

### Council's Latest Action

The Council's action at the November meeting was in response to the Blue Cross-Blue Shield Boards' reply to the committee request, which was submitted to the Council in the form of the following resolution:

"That the Blue Cross Board of Trustees approve the offering of the regular Blue Cross contract to people sixty (60) years of age and over, except that the number of days' care be limited to thirty (30).

That the Blue Shield Board of Trustees approve the offering of the Blue Shield standard contract (\$200 fee schedule) to people sixty (60) years of age and over, except that in-hospital medical care be limited to eighteen (18) days, beginning with the fourth (4th) day.

Further, that these contracts be offered in each county at the next regular non-group enrollment in that county; that the rate for these contracts shall be the same as that charged the regular non-group Blue Cross-Blue Shield members in that county.

Further, that the experience of holders of these contracts shall be allocated to the rest of the contract holders in that county, both group and non-group, on the basis of contracts in force."

### Other Actions

In addition to the Blue Shield proposal, the Council:

(Continued on Page 823)



## DeBakey to Appear on Annual Meeting Panel



Michael Ellis DeBakey, M.D., Professor of Surgery and Chairman of the Department of Surgery, Baylor University College of Medicine, Houston, Texas, will appear as a panelist for one of the outstanding features of the scientific program for the OSMA Annual Meeting.

An outstanding man in his field, Doctor DeBakey has won many awards including the Legion of Merit, U.S. Army in 1945, the Rudolph Matas Award in Vascular Surgery in 1954, the AMA Hektoen Gold Medal in 1954, the Modern Medicine Award, in 1949, the International Society of Surgery Distinguished Service Award in 1958, the Roswell Park Medal in 1959 and the AMA Distinguished Service Award in 1959.

Discussing peripheral cardiovascular diseases with Doctor DeBakey will be Edgar

Allen, M.D., Rochester, Minnesota and Robert W. Virtue, M.D., Denver, Colorado. After each speaker discusses the subject, a panel discussion will permit audience participation. Local physicians from related fields will augment the program.

### Open Meeting on Public Relations

Following the panel discussion on peripheral cardiovascular diseases which will be held on Tuesday morning, a luncheon meeting will be held in the Hall of Mirrors with Claude Robinson, Ph.D., Chairman of the Board of Opinion Research Corporation, Princeton, New Jersey, as the guest speaker. A national authority on public opinion surveys, Doctor Robinson will present the results of factual research, regarding the image that the medical profession has created in the minds of the public.

Since this subject is one of broader interest than to the physicians themselves, it is anticipated that wives and University of Oklahoma medical students may also be invited to attend.

### Six Additional Guest Speakers

Other speakers on the scientific program and their fields of medicine will be: Harold Rosen, M.D., Baltimore, Maryland, psychiatry; Schuyler Kohl, M.D., Brooklyn, New York, obstetrics and gynecology; Vincent Derbes, M.D., New Orleans, Louisiana, dermatology; Ben Felson, M.D., Cincinnati, Ohio, radiology; Harold A. Sofield, M.D., Oak Park, Illinois, orthopedic surgery; and Grayson Carroll, M.D., St. Louis, Missouri, urology.

### Specialty Groups to Meet

Another unique feature of the program will be the early afternoon termination of the Monday session, in order to offer related medical societies the opportunity to conduct meetings of their own on Monday afternoon and evening. Several specialty societies plan to use the out-of-state guest speaker of their respective specialty as the principal speaker for a Monday evening banquet.

Oklahoma City's Municipal Auditorium will be the site of OSMA's 54th Annual Meeting on May 2, 3, 4, 1960.

## Movie Tags Medical Assistant As "Doctor's PR Ambassador"

The key role played by the physician's medical assistant in creating good public relations is emphasized in a new film now available for showings to medical societies and medical assistants groups.

Entitled "First Contact," the 26-minute dramatic color film shows the mistakes a new office assistant can make unless she is properly trained for her job and points out that medical assistants groups provide opportunities for increasing on-the-job efficiency.

Doctor F. J. L. Blasingame, Executive Vice President of the American Medical Association, who appears in the film, says the medical assistant is a valuable ally in providing better patient care. Says Doctor Blasingame:

"The medical assistant is the doctor's public relations ambassador—often she has first contact with the patient. Her understanding of good doctor-patient relations and her practice of the techniques that create good will are manifold in their value to her physician and the medical profession.

"The professional medical assistant can make it possible for the doctor to concentrate his time on the scientific side of his practice."

In the film Doctor Blasingame comments on the growth of a new national organization, the American Association of Medical Assistants, dedicated to educational improvement and medical profession cooperation. The AMA passed a resolution commending the aims and objectives of the AAMA in December, 1956.

"First Contact" was premiered before 500 members of the American Association of Medical Assistants holding their third national convention in Philadelphia October 16. Prints of the 16 mm film will be available after December 1 to medical societies for showings through AMA's Department of Medical Motion Pictures and Television and to medical assistants groups through the headquarters of the American Association of Medical Assistants in Chicago at 510 North Dearborn Street.

## Medical Sciences Hall of Fame Inducts Twenty-three

Twenty-three persons were inducted into the Oklahoma Medical Sciences Hall of Fame in the second annual installation ceremony sponsored by the Alumni Association of the University of Oklahoma School of Medicine.

Honorees include Mark R. Everett, Ph.D., director and dean of the University of Oklahoma Medical Center, and Louis H. Ritzhaupt, M.D., Guthrie, cited for his service in the state senate.

Others were laymen selected by the physicians for Hall of Fame recognition as having made unique contributions to the advancement of medicine in Oklahoma.

The inductees: Stanley C. Draper, managing director of the Oklahoma City Chamber of Commerce; Nolen Fuqua, Duncan conservation and civic leader; Paul Hoheisel, Oklahoma City, advertising and publicity manager for Oklahoma Gas and Electric Co.; Edith C. Johnson, The Daily Oklahoman columnist; L. D. Lacy, president of Central State Bank of Oklahoma City; Roy Lytle, Oklahoma City attorney;

John E. Mabee, Tulsa oilman and philanthropist; James C. Nance, Purcell veteran lawmaker and newspaper publisher; Howard Neumann, Oklahoma City executive vice-president of the Lowe Runkle Co.; the late W. W. Woodworth, Ardmore business executive, honored posthumously.

Inducted as a group were the 11 members of the Volunteer Women's Service Corps of the Oklahoma Medical Research Foundation, led by Mrs. Erich P. Frank, Oklahoma City. Mrs. Clarence Paine, first chairman and organizer of the corps, came to Oklahoma City from Lansing, Michigan, her present home, for the event.

Ceremonies were during a formal dinner October 17 at the Oklahoma Medical Research Foundation.

---

The film, produced for AAMA in cooperation with AMA as a special service of Wyeth Laboratories, also can be obtained by writing directly to the Wyeth Film Library, Box 8299, Philadelphia 1, Pennsylvania.



February Meeting Scheduled  
By Oklahoma AAGP

Various fields of medicine and surgery will provide topics for the guest speakers for the 12th Annual Meeting of the Oklahoma Chapter of the American Academy of General Practice to be held in Tulsa, February 15-16, 1960. Site of the two-day meeting will be the Tulsa Hotel.

Seven outstanding guest speakers have been secured for the meeting. They are: Keith Hammond, M.D., Paoli, Indiana; Benjamin Felson, M.D., Cincinnati, Ohio; James Kelley, M.D., Tulsa; Isadore Dyer, M.D., New Orleans, Louisiana; Carle Scuderi, M.D., Chicago, Illinois; A. S. Ridolfo, M.D., Indianapolis, Indiana; and W. D. Snively, Jr., M.D., Evansville, Indiana.

Marshall O. Hart, M.D., Tulsa, is general chairman for the 1960 meeting.

San Antonio Will Host  
International Medical Assembly

San Antonio will be the site of the 24th Annual Session of the International Medical Assembly of Southwest Texas which will be held January 25-27, 1960 at the Hilton Hotel.

Appearing on the program will be 17 guest lecturers from diversified fields of medicine. They are: Col. Harvey C. Slocum, MC, Washington, D.C., anesthesiology; Louis A. Brunsting, M.D., Rochester, Minnesota, dermatology; Laurance W. Kinsell, M.D., Oakland, California, endocrinology; Bernardo Sepulveda, M.D., Mexico City, gastroenterology; William S. Middleton, M.D., Washington, D. C., internal medicine; Louis G. Welt, M.D., Chapel Hill, North Carolina, internal medicine; Russell N. DeJong, M.D., Ann Arbor, Michigan, neurology; Peter C. Kronfeld, M.D., Chicago, Illinois, ophthalmology; Herbert E. Schmitz, M.D., Chicago, Illinois, obstetrics-gynecology; Leopold G. Koss, M.D., New York, pathology; Alexander S. Nadas, M.D., Baltimore, Maryland, pediatrics; Harold Rosen, M.D., Baltimore, Maryland, psychiatry; John D. Reeves, M.D., Gainesville, Florida, radiology.

Also appearing will be: Wiley F. Barker, M.D., Los Angeles, California, surgery; Wil-

fred G. Bigelow, M.D., Toronto, Canada, surgery; Robert W. Buxton, Baltimore, Maryland, surgery and John M. Waugh, M.D., Rochester, Minnesota, surgery.

In addition to the scientific program, there will be many social events for the physicians and their wives.

Further information is available by writing to A. O. Severance, M.D., President, 202 West French Place, San Antonio 12, Texas.

Treasury Department Wants  
Medicare Income Reports

Oklahoma Blue Shield, fiscal administrator of the Dependents' Medical Care Program, recently received information to the effect that the Treasury Department, Internal Revenue Service, has requested that a separate form be filed for each calendar year on physicians to whom Medicare payments in excess of \$600 have been made.

The following is quoted from the Revenue Ruling:

"Section 604 (A) of the Internal Revenue Code of 1954 provides, in part, that all persons engaged in a trade or business and making payment in the course of such trade or business to another person, of rent, salaries, wages, premiums, annuities, compensations, remunerations, emoluments, or other fixed or determinable gains, profits, and income (other than certain payments not pertinent here) of \$600 or more in any taxable year, . . . shall render a true and accurate return to the Secretary of the Treasury or his delegate, . . . setting forth the amount of such gains, profits, and income, and the name and address of the recipient of such payment."

TB IN OKLAHOMA, 1958 FACT SHEET	
Cases on record	*5,848
New cases (1958)	961
Deaths	162
Cases in hospitals	620
Active cases at home	916
*This does not include those in mental hospitals or penal institutions.	



## *Have something to exhibit*

If so, you should apply now for space at the 1960 meeting of your association. Scientific Exhibits will again play a major role . . . so why not prepare a graphic presentation of your work and share it with the 700 physicians who will attend the state's largest medical meeting? A research or clinical project may be shown as an individual exhibit, or you may present a single case in the "Klinical Kaleidoscope" section.

## *Research or clinical project*

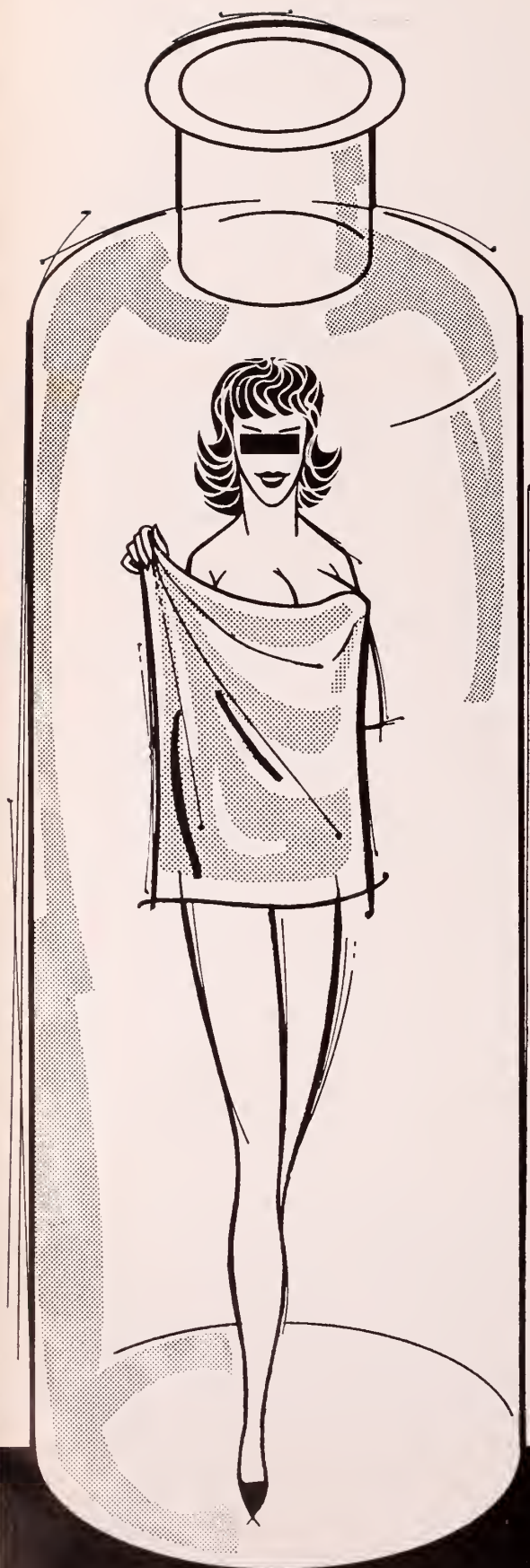
Perhaps you have done some original research, undertaken some experimental work, or simply drawn some conclusions based upon a series of interesting cases. Then you would be eligible to apply for an exhibit booth of your own in the Scientific Exhibit Section. A subject which has a special visual interest would be particularly suitable . . . and it need not be large—just stimulating!

## *Bizarre case*

All of us have encountered a unique case which is worth talking about. If you have a well-documented one which you would like to share with others, toss your hat in the ring today by completing the application on the opposite page. The "Klinical Kaleidoscope" section will be a varied selection of bizarre cases, each presented with one to five x-rays or illustrations and accompanied by a very brief abstract of the clinical course.

# **O.S.M.A. ANNUAL MEETING**

*municipal auditorium • oklahoma city  
may 2·3·4, 1960*



# APPLICATION FOR SCIENTIFIC EXHIBIT SPACE

54th Annual Meeting

OKLAHOMA STATE MEDICAL ASSOCIATION

Municipal Auditorium — Oklahoma City — May 2, 3, 4, 1960

1. NAME AND ADDRESS OF APPLICANT:

2. TITLE OF EXHIBIT:

3. INDIVIDUAL BOOTH? ☐

"KLINICAL KALEIDOSCOPE" SECTION? ☐

4. SPACE REQUIRED:

A. BOOTH: Indicate width in multiples of eight feet \_\_\_\_\_

(All booths will be 6 feet in depth)

B. "KLINICAL KALEIDOSCOPE": Indicate square footage:

Wall-type display \_\_\_\_\_ Table top \_\_\_\_\_

5. A. GENERAL DESCRIPTION:

B. MATERIAL TO BE SHOWN (Subject matter):

C. METHOD OF PRESENTATION (x-ray, photos, graphs, models, etc.):

6. PREVIOUS SHOWINGS

## ACT NOW — SPACE IS LIMITED

Applications Must Be Received Prior to March 1, 1960

Oklahoma State Medical Association • Box 9696 • Oklahoma City

## BLUE CROSS PERCENTAGE UTILIZATION BY COUNTY

HOSPITAL CARE USED—1958 AVERAGE COMPARED TO AVERAGE FOR FIRST NINE MONTHS OF 1959

County Name	1958	9 mo. 1959	County Name	1958	9 mo. 1959
Adair	122.0%	84.8%	Lincoln	108.5	103.3
Alfalfa	90.1	107.1	Logan	57.1	55.8
Atoka	90.0	98.5	Love	76.4	99.8
Beaver	100.5	86.1	McClain	89.3	96.1
Beckham	101.2	107.5	McCurtain	113.0	119.0
Blaine	115.0	91.7	McIntosh	66.4	93.6
Bryan	70.5	79.5	Major	97.8	100.2
Caddo	97.1	91.5	Marshall	93.8	72.3
Canadian	83.3	79.8	Mayes	92.6	78.8
Carter	92.3	74.6	Murray	69.1	95.2
Cherokee	113.3	88.5	Muskogee	78.4	77.7
Choctaw	106.7	115.2	Noble	98.0	98.9
Cimarron	88.7	131.7	Nowata	120.3	120.1
Cleveland	84.8	79.9	Okfuskee	91.5	71.6
Coal	126.6	104.0	Oklahoma	78.1	70.2
Comanche	89.9	98.5	Okmulgee	95.4	117.5
Cotton	91.6	81.2	Osage	102.3	124.2
Craig	98.4	107.5	Ottawa	101.8	97.8
Creek	109.9	130.9	Pawnee	109.3	109.1
Custer	104.2	80.5	Payne	93.0	87.7
Delaware	100.9	116.6	Pittsburg	103.9	97.2
Dewey	86.7	91.5	Pontotoc	101.0	103.0
Ellis	79.0	85.4	Pottawatomie	84.5	76.8
Garfield	115.0	112.4	Pushmataha	113.0	102.8
Garvin	75.0	84.9	Roger Mills	111.6	135.9
Grady	77.0	75.4	Rogers	96.4	85.9
Grant	106.4	132.2	Seminole	78.5	71.3
Greer	81.5	69.5	Sequoyah	89.7	135.9
Harmon	60.6	64.7	Stephens	97.0	85.9
Harper	90.1	101.0	Texas	118.1	105.7
Haskell	73.3	102.1	Tillman	115.4	108.7
Hughes	106.1	86.5	Tulsa	103.8	101.0
Jackson	82.6	74.7	Wagoner	97.6	76.5
Jefferson	133.5	140.8	Washington	100.5	105.3
Johnston	74.0	68.6	Washita	108.4	68.4
Kay	90.3	89.6	Woods	107.2	99.9
Kingfisher	81.9	67.3	Woodward	91.4	90.8
Kiowa	88.2	90.4			
Latimer	114.8	118.9			
LeFlore	86.9	89.7	Average	94.6%	93.8%

NOTE: Utilization is on a paid basis and does not include reserves, operating expenses, nor any estimated retroactive payments.

Released at the request of the Blue Cross-Blue Shield Liaison Committee for the information and education of OSMA members.



## Film on Management of Strokes Issued by Heart Association

A new professional film designed to acquaint general practitioners and nurses with concepts and techniques basic to the care of stroke patients has been released by the American Heart Association.

Titled "Cerebral Vascular Diseases: The Challenge of Management," the film demonstrates the latest methods of aiding recovery and rehabilitation of stroke patients through use of services and equipment available to all physicians.

A version of this film for lay audiences, titled "Second Chance," has also been produced for the Heart Association and its affiliates. It can be of help to physicians in instructing families of stroke victims on rehabilitation procedures, and as a visual aid in addressing non-professional groups.

Both are 16 mm. black-and-white sound films, produced and directed by George C. Stoney and Associates for the American Heart Association. The films were aided by a grant from E. R. Squibb & Sons, division of Olin Mathieson Chemical Corporation. Prints are available for purchase or loan from the Oklahoma State Heart Association, 825 N.E. 13th Street, Oklahoma City 4, Oklahoma.

## Council Likes Blue Shield Plan

(Continued from Page 816)

- Heard comprehensive reports on the Department of Public Welfare medical care program and the Crippled Children's program (now under the direction of the DPW).

- Reaffirmed their appointments to the Crippled Children's Commission Advisory Board.

- Referred a request (Committee on Aging) for the provision of geriatric fellowship funds to a committee for further consideration.

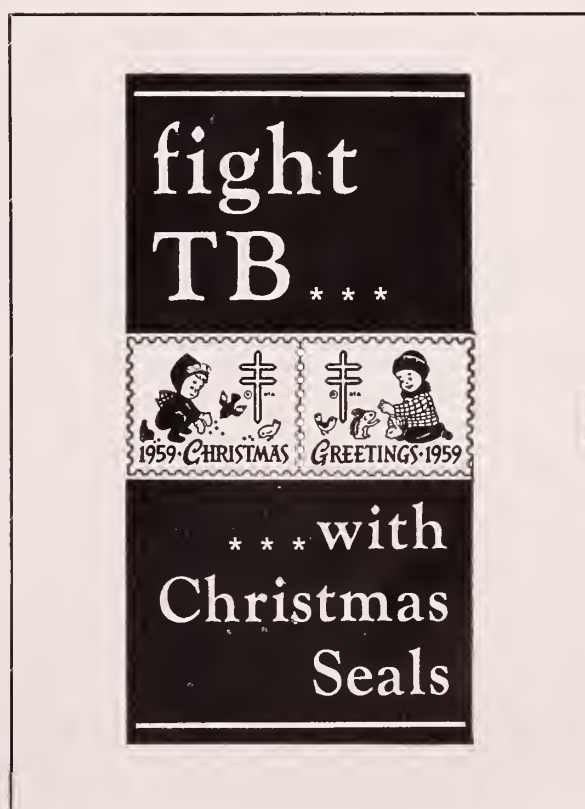
- Approved continued co-sponsorship of a highschool essay contest which is annually promoted by the American Association of Physicians and Surgeons.

## State Heart Association Plans February PG Course

Four medical leaders in the field of Cardiac Rehabilitation will be presented for Oklahoma physicians Wednesday, February 10, 1960, under the sponsorship of the Oklahoma State Heart Association's Cardiac in Industry and Agriculture committee.

Scheduled as a post-graduate course at the Oklahoma Medical Center, 800 Northeast 13th Street, the program is designed to bring the latest, most authoritative information on rehabilitation of the cardiac patient.

Out-of-state participants on the program include Frederick J. Kottke, M.D., professor and head of the department of physical medicine and rehabilitation at the University of Minnesota, Minneapolis; Amasa B. Ford, M.D., department of medicine, Western Reserve University, Cleveland, Ohio; L. E. January, M.D., department of internal medicine, University of Iowa, Iowa City; and Carlton D. Chapman, M.D., Professor of Medicine, Southwestern Medical School, Dallas, Texas.



# Auxiliary News

## Terminal Months

Keen appreciation of terminal months of the year affords us an interesting perspective, as individuals and as Auxiliary members. First of all, we can extend our thankfulness to include our privilege to meet as wives of physicians, women with mutual interests. In the spirit of giving, we can include our greatest potential: individual responsibility in giving of our time and talent.

Further, in respect to the coming of the new year, we can evaluate the effectiveness of our own Auxiliary program in each county, strengthening any weakness which might be apparent thus far in the calendar year.

## Time and Talent

As we approach the beginning of a new decade, Auxiliary members are increasingly aware that this period will be crucial—can be critical. In addition to the time and talent needed, our Auxiliary needs continually increased interest and concern. Where there is group interest and concern, necessary group action can logically follow.

High on our list of projects to forestall and prevent federal control is the American Medical Education Foundation. Each of us can help. In our 85 approved medical schools in this country, student tuition covers only 18.2% of the actual cost of training. Endowment income, grants and bequests from individuals and foundations cover part of the deficit.

A.M.E.F. was established in 1951. The AMA pays for all expenses of this worthy project, so that no monies are withheld for operating expenses of the fund. Every dollar contributed goes directly to the medical school of your choice, or to the general fund, if you prefer. Five past presidents of AMA form the governing board of A.M.E.F.

Mrs. Karl F. Ritter, National Chairman, has announced that our contribution for 1958-59 was \$140,500, which includes donations from Auxiliaries and from individual members. This year the goal of \$175,000 has been set. Mrs. Ritter explains: "If each member accepted the responsibility of providing \$5 for A.M.E.F. . . . we would have more than twice the goal we have set for ourselves. Is this asking too much—\$5 worth of interest and support over a year's time?"

Mrs. Pat Fite, Sr., State A.M.E.F. Chairman, lists the following as types of gifts that can be made to the fund:

1. Put A.M.E.F. in your Auxiliary budget, if you have not already done so.
2. Use the fund as a means of expressing personal thanks to a doctor.
3. Honor a graduate from a Medical School.
4. Express appreciation to some one who has paid his (or her) own expenses to come to address your meetings.
5. Use as a "thank you" to a hostess.
6. Contribute to A.M.E.F. as a memorial tribute to deceased friends.

Contribution cards are available from your local A.M.E.F. Chairman; or, if you are a member-at-large or your Auxiliary does not have an A.M.E.F. Chairman, send your check with the name and address of the person honored and the specified medical school to:

Mrs. Pat Fite, Sr.  
1417 Emporia Street  
Muskogee, Oklahoma

What better way to celebrate Thanksgiving and Christmas—and to start the New Year? Send a gift, either memorial or donation (tax deductible) to A.M.E.F. to express our thankfulness and to help further medical freedom!



25 YEARS  
AGO



Articles published in *The Journal* of the Oklahoma State Medical Association, December, 1934.

### Ano-Rectal Fistulae

Raymond L. Murdock, M.D., Oklahoma City

Practically the treatment of fistula in ano is operation. It may be either incision (fistulotomy) or excision (fistulectomy) with or without a variable amount of closure by suturing. The distal part of the tract may be excised and a silk ligature threaded through the remainder encircling the involved part of the sphincter, this latter to be incised at a later time when the distal part has filled in and the granulation will prevent undue retraction of sphincter ends when they are severed. Fistulectomy under antiseptic precautions of a superficial distal tract can be followed by suture of that part of the wound. On the other hand a lateral fistulous tract often goes very deep being the remains of the abscess in the ischio-rectal or supra-levator spaces. This has to be kept open and will heal if the other tract from the ano-rectal junction is laid open and the reinfection thus stopped. Deep incision into the anus can be made in the midline posteriorly. Judgment must be exercised as to the amount of sphincter that can be cut at the other parts of the circumference at a single operation. Other procedures to prevent undue retraction of the cut ends of the sphincter are suturing the ends until granulation tissue sets them in place, and primary suturing of the cut ends to firm tissue underlying them.

I have not had success with the Elting procedure to close the internal opening by mobilization and suture of the bowel wall. However, I will describe a procedure which might be considered akin to it in some respects, which has given me uniformly good results:

Several years ago I began saving the continuity of considerable sphincter muscle at the site of fistulectomy. Previously I had usually followed the practice in rectal surgery of cutting through everything lying between the fistula and the lumen of the bowel. By using small hemostats and scissors I have been able to make a more minute dissection and excision of the tract without severing the overlying sphincter. A slight amount of freeing of the bowel wall above it is done. It is then possible to place the sphincter upward and stitch the rectal wall downward over it fixing the sphincter against solid tissue in a somewhat higher

but nevertheless good functioning position. The final result is a more normal anal contour without the notched defect sometimes marked after the usual operation. Since development of this way of saving sphincter I have been able to operate in a single trip to surgery on two separate fistulae on opposite sides of the anus of the same patient who previously would have had to recover from one, and then return in a month or so for another anaesthetic and operation on the other side.

### Discussion

Dr. J. A. Walker, Shawnee

This especial problem is entirely new to me, but some years ago I had a condition similar to this in a boy. I was called down to the south end of the county one night, and I went and found this boy about eleven o'clock at night in his home. The abdomen was distended, and he gave a history that he was out in a pasture and fell into a ditch about ten feet deep, and he got out and came home and finished doing up the chores, and then got sick. His father gave him a couple of C. C. pills and salts, etc., and he promptly threw all that up. They called me and I took Dr. Baxter with me and we landed at the home about eleven o'clock at night, and there was this desperately sick boy. They didn't have any light to speak of, but the doctor happened to have an acetylene light and when we lighted the doctor's light all the flies within three hundred miles came into the house. We didn't have anything to smear on the boy's belly, but we found hanging on the wall about an ounce of tincture of iodine and we smeared that on the boy's abdomen and anesthetized him after telling the father there was nothing to do except operate, and we didn't want to do that. We laid him up on the kitchen table and went ahead. Dr. Baxter said: "Here is our kink," and over the right side there was an enlargement and completely obstructed bowel. We picked it up, and there was the intestine perfectly occluded, about twelve or fifteen inches above the ileocecal valve. We got that open and there was a rock about as big as a golf ball, or maybe a little larger. About eight inches above this there was another obstruction, and we slipped that down to the same hole and dropped it out. The boy got well and seems to be well yet.

**Dr. Kuhn:** He must have absorbed those rocks when he fell in the ditch.

The 1959 Christmas Seal Campaign to fight tuberculosis opened November 16, and continues through December.

Progress in the fight against tuberculosis, since the first Christmas Seal Campaign, has meant a saving of more than 8½ million lives.



# PHYSICIAN PLACEMENT

## Dermatology

Thomas E. Slimp, M.D., 323 West Livingston Place, Metairie, Louisiana, age 42, married, Syracuse Medical School, 1950, board certified January 1, 1960. No military obligations, available January 1, 1960.

Gordon Harold Ekblad, M.D., Field Medical Service School, Camp Pendleton, California, 53, married, University of Minnesota, 1930, available January 1960.

## General Practice

Donald D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, Oklahoma University School of Medicine, 1958, no military obligations, available immediately.

Johnny Bill Delashaw, U.S.P.H.S. Hospital, Wyman Park Drive and 31st Street, Baltimore 11, Maryland, age 27, married, University of Texas Medical Branch, 1959, available July 1960.

D. H. Bessesen, M.D., Grand Canyon Hospital, Grand Canyon, Arizona, age 61, married, University of Minnesota, interested University Health Service, available October 1, 1959.

Sherman Allen Hope, M.D., 1105 Yale Ave., Panama City, Florida, PO 3-6656, age 27, married, University of Oklahoma School of Medicine, 1957, available July 1960.

Paul J. Vega, M.D., 6070 Orleans Ave., New Orleans, Louisiana, age 26, married, Louisiana State University, 1956, no military obligations, available now.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, Tulane, 1943, veteran, has interest in teaching, availability date depends on situation.

## Internal Medicine

Richard I. Hochman, M.D., 37, Badger Road, Annapolis, Maryland, 31, married, New York University, 1952, available October 1, 1960.

Albert D. Roberts, Jr., M.D., 4333 Colgate, Dallas, Texas, 29, married, Southwestern Medical School, Veteran, available July 1959.

Van B. Saye, Jr., M.D., 1230 Brockenbraugh Court, Metairie, Louisiana, age 28, married, Medical College of Georgia, 1954, Air Force Reserve, available July 1, 1960.

## Locum Tenens

Arnold Giesbrecht, M.D., Hallock, Minnesota, age 34, married, graduate Winnipeg, Manitoba, 1957, prefers suburban or locality close to cities.

James D. Green, M.D., second year resident in Internal Medicine at St. John's Tulsa, desires one year of Internal Medicine practice before taking third year of training. Prefers clinic in city of 50,000 or greater population.

Russell M. Preston, M.D., 476 San Juan, Oak Harbor, Washington, desires six month's work in General Practice between time of separation from military service to beginning of residency training, January-July, 1960.

## Obstetrics and Gynecology

Lynn W. Abshire, M.D., 708 N.E. 14th, Oklahoma City, age 31, married, University of Oklahoma School of Medicine, 1956, American College of OB-GYN, no military obligations, available July 1, 1960.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, University of Texas, 1953, board qualified, veteran, available in July 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, University of Minnesota, 1955, board eligible upon completion of fellowship, veteran, available July 1, 1959.

David H. Holmes, M.D., 1017 Grovena Drive, St. Louis, Missouri, 37, married, Washington University, St. Louis, Veteran, available July 1, 1960.

Nejdat Mulla, M.D., 1110 Belmont Avenue, Youngstown, Ohio, age 36, married, University of Geneva, Switzerland, 1952, American College of OB-GYN, not eligible military service, available July 1, 1960.

Harold G. Ray, M.D., 212 Darien Place, Box 503, Balboa Heights, Canal Zone, age 28, married, University Arkansas School of Medicine, 1955, now in active reserve, available July 1, 1960.

Alvon C. Winegar, M.D., 1940 Michigan, Benton Harbor, Michigan, age 41, married, Wayne University, 1942, no military obligation, available early 1960.

## Pediatrics

H. M. McClintock, M.D., 5712 St. John St., Kansas City, Missouri, 29, married, Baylor University, 1955, veteran, available December 1960.

## Surgery

(Name on Request) 32 years old, married, Tulane, 1952, veteran, board eligible.

Johnson P. Graves, M.D., Box 142, Pulaski Heights Station, Little Rock, Arkansas, age 36, married, Arkansas School of Medicine, 1950, board eligible, no military obligations, available Fall 1959.

Olin O. Williams, Jr., M.D., 3768 Alma Drive, Memphis, Tennessee, 29, married, University of Tennessee, veteran, available January 1962.

## Urology

Charles Lee Reynolds, Jr., M.D., 5012 Rockport Drive, Dallas, Texas, age 32, Southwestern Medical College, Dallas, 1949, board eligible, married, no military obligations, available July 15, 1960.

Alex Grossman, M.D., V.A. Center, Temple, Texas, 42, married, University of Texas, 1951, board certified, veteran, available now.

Herbert Sohn, M.D., 2010 Cliffview Road, Cleveland, Ohio, 32, married, Chicago Medical School, 1955, veteran, available July 1960.

## MISCELLANEOUS ADVERTISEMENTS

17 BED hospital, clinic and equipment for sale. Prefer to sell all to one buyer in attractive package offer, but will consider other offers. Equipment includes X-ray, fluoroscope, Medco Sonalator, BMR, diathermy, etc. In settling estate of Charles W. Ohl, M.D., facilities and equipment will be sold at considerably less than original cost, and time payments may be arranged. Contact Walt Allen, Co-Executor, 116 North 4th Street, Chickasha, Oklahoma.

WANTED: General Practitioner—Five man established group. Prefer locum tenens for one year. Will meet competitive salary requirements for qualified man. Contact H. B. Landholt, Business Manager, Physicians & Surgeons Clinic, Box 711, Holdenville, Oklahoma.

FOR SALE: \$40,000 per year General Practice. 14 room completely equipped clinic. County seat town of 4,000 with new 40 bed hospital. \$5,000 will handle. Write Key J, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

PHYSICIANS WANTED: Qualified Physicians needed to work with psychiatric patients in 2,400 bed hospital near Tulsa; salary range \$9,180 to \$12,120; if Board Certified \$11,700 to \$15,540. Citizenship required. Vacationland for fishing, boating, other outdoor sports. Write for other particulars, Eastern State Hospital, Vinita, Oklahoma.

OFFICE SPACE for rent, modern building, 528 N.W. 12th, Oklahoma City. Complete maintenance, air conditioning, free parking space for patients. CE 6-1631.

WANTED: Internist to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

WANTED: Surgeon to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

Internist, Board eligible, 38, family, experienced clinical research, teaching; chief interests cardiovascular, arthritic, geriatric diseases. Prefer Midwest or Southwest individual, small group near medical school. Licensed in Oklahoma. References, curriculum vitae available. Write Key B, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

EXCELLENT OPPORTUNITY in Dallas, Texas for pediatrician to practice in building with five other specialists, including one established pediatrician. This is a group of specialists all having their own individual practice. Contact Key C, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

Complimentary space available to members for three consecutive months. For non-members, the rate is \$5.00 each month for each inch of copy or fraction thereof.

# Index To Contents

The use of the Index will be greatly facilitated by remembering that articles are often listed under more than one heading. Scientific articles may be found under the name of the author and the name of the article as well as under listings of authors and Scientific Articles. Editorials and deaths are listed under the special headings as well as alphabetically.

## Pages Included in Each Issue

January	1-64	July	437-503
February	67-124	August	505-572
March	125-210	September	573-642
April	213-286	October	643-710
May	287-354	November	711-767
June	355-436	December	769-840

## Key to Abbreviations

(S)—Scientific	(BR)—Book Review
(E)—Editorial	(D)—Deaths
(SA)—Special Article	(PIC)—Picture
(MC)—Medical Center	(GN)—General News

—A—

A.A.G.P. Meeting Set Next Month (GN)	62
AAPS Plans Fort Worth Meeting (GN)	195
Abernethy, E. A., M.D. (Pic)	341
ACP Outlines Autumn-Winter Postgraduate Courses Symposium (GN)	618
Address of the Honorable Orville L. Freeman, Governor of the State of Minnesota (E)	216
"Aging" to Highlight Association Meeting (GN)	694
Air-Medics Association to Meet (GN)	194
Alston, Herman D., M.D., and Everett, Mark Allen, M.D., Griseofulvin Therapy of Superficial Cutaneous Mycoses (SA)	793
Alumni Association Proposes New Program (GN)	47
AMA, AHA Take Issue With Hospital Critic (GN)	105
AMA Names Martin As GP of the Year (GN)	810
AMA to Hold 13th Clinical Meeting in Dallas (GN)	750
American Cancer Society Seminar Scheduled (GN)	759
American College of Surgeons to Meet in St. Louis (GN)	105
"American Registry of Doctors and Nurses" in Violation of Nursing Act (GN)	104
An Age-Old Problem, Gundersen, Gunnar, M.D. (S)	367
Annual Meeting Highlights (GN)	335
Annual Meeting Plans Underway (GN)	701
Aneurysms of the Aorta, Carey, John M., M.D., Greer, Allen E., M.D., Zuhdi, Nazih, M.D. (S)	587

Annual Meeting Preview	168-190
Application for Annual Meeting Exhibit Space (GN)	755
Application for Annual Meeting Exhibit Space (GN)	320
Army Reserve Hospital Activated in Oklahoma (GN)	404
Art Centers of Oklahoma (E)	67
Arterio-Venous Fistula: Rupture of Abdominal Aortic Aneurysm in the Vena Cava, Williams, G. Rainey, M.D., and Webb, James, M.D. (S)	387
Atlantic City to Host AMA Annual Meeting (GN)	328
Austin, Frank H., M.D., Post Operative Reaction Following Mitral Commissurotomy (S)	651
Avey, Thompson H., M.D., Gastritis and Hemorrhage (S)	75

## AUTHORS

Alston, Herman D., M.D., and Everett, Mark Allen, M.D., Griseofulvin Therapy of Superficial Cutaneous Mycoses (SA)	793
Avey, Thompson H., M.D., Gastritis and Hemorrhage (S)	75
Bargen, J. Arnold, M.D., Inflammatory Disease of the Small Intestine (S)	439
Brown, Charles H., M.D., Medical Treatment of the "Surgical" or Complicated Peptic Ulcer (S)	289
Brown, D. Nello, M.D., Hunter, DeWitt T., M.D. and Redmond, Robert F., M.D., Extracervical Cancer Detection by Fluorescent Cytology (SA)	772
Browne, Henry S., M.D., Transurethral Resection of Non-Infiltrating Carcinoma of the Bladder (S)	358
Brunsting, Louis A., M.D., Dermatomyositis any Systemic Lupus Erythematosus in Childhood (S)	9
Burke, Richard E., M.D., Present Day Treatment of Tuberculosis (S)	455
Burns, Dixon N., M.D., Genital Tract Discharge (S)	18
Campbell, Gilbert S., M.D., Cayler, Glenn G., M.D., Richardson, William R., M.D., Snyder, David, M.D., and Williams, G. Rainey, M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S)	221
Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., A Study of Hypothermic Perfusion (S)	671
Carey, John M., M.D., Greer, Allen E., M.D., Zuhdi, Nazih, M.D., Aneurysms of the Aorta (S)	587



Carey, John M., M.D., Zuhdi, Nazih, M.D., Greer, Allen E., M.D., Johnson, Peggy, R.N., and Fagella, Mary Lou, R.N., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S) .....	15	Funnell, James D., M.D., The Metabolic Response to Trauma (SA) .....	786
Cayler, Glenn G., M.D., Campbell, Gilbert S., M.D., Richardson, William R., M.D., Snyder, David, M.D., and Williams, G. Rainey, M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S) .....	221	Gallagher, C. A., M.D., and Saied, William R., Cooperation Between the Attorney and the Doctor (SA) .....	395
Caylor, Glen G., M.D., Selection of Pediatric Patients for Cardiac Diagnostic and Surgical Procedures (S) .....	446	Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., A Study of Hypothermic Perfusion (S) .....	671
Clapper, Muir, M.D., Lowbeer, Leo, M.D., and Wermer, Paul, M.D., Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death (S) .....	726	Ginn, H. Earl, M.D., The Use of Extracorporeal Hemodialysis: Artificial Kidney (S) .....	527
Compton, Mrs. Esther and Menguy, Rene, M.D., Ph.D., Medical-Surgical Conference (S) .....	147	Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Aneurysms of the Aorta (S) .....	587
Chatham, Beverly C., M.D., A Ten-Year Experience with Caesarean Section in a 50-bed Hospital (S) .....	507	Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., A Clinical Study of Hypothermic Perfusion (S) .....	671
Cuddy, T. Edward, M.D., Dyspnea in Congestive Heart Failure (S) .....	579	Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Johnson, Peggy, R.N., and Fagella, Mary Lou, R.N., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S) .....	15
DeCosta, Edwin J., M.D., Modern Concepts of Prenatal Care (S) .....	69	Grimm, Clark A., M.D., Cancer of the Tongue (S) .....	721
Denhoff, Eric, M.D., Laufer, Maurice, M.D., and Holden, Raymond H., M.A., Syndromes of Cerebral Dysfunction (S) .....	360	Gundersen, Gunnar, M.D., An Age-Old Problem (S) .....	367
Denny, Ralph C., M.D., and Vickers, Paul M., M.D., Malignancy of the Rectum and Sigmoid Colon (S) .....	307	Hammarsten, James F., M.D., Honska, Walter L., Jr., M.D., and Johnson, W. Tom, M.D., Scalene Node Biopsy (S) .....	28
DeVore, John W., M.D., A Community Approach to the "Senior Citizens" Problem (SA) .....	261	Henley, Thomas H., M.D., Rotary Power Lawn Mower Injury: Perforation of the Stomach (S) .....	86
Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., A Clinical Study of Hypothermic Perfusion (S) .....	671	Holden, Raymond, M.A., Laufer, Maurice, M.D., and Denhoff, Eric, M.D., Syndromes of Cerebral Dysfunction (S) .....	360
Donnell, John J., M.D., The Pathogenesis of Congestive Heart Failure (S) .....	451	Honska, Walter L., Jr., M.D., Johnson, W. Tom, M.D., and Hammarsten, James F., M.D., Scalene Node Biopsy (S) .....	28
Everett, Mark Allen, M.D. and Alston, Herman D., M.D., Griseofulvin Therapy of Superficial Cutaneous Mycoses (SA) .....	793	Howard, Frank H., M.D., Problem of Massive Upper GI Hemorrhage With Emphasis on Peptic Ulcer (S) .....	234
Faggella, Mary Lou, R.N., Johnson, Peggy, R.N., Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Experimental Background for Open Heart Surgery at University Hospital in Oklahoma City, Oklahoma (S) .....	15	Hunter, DeWitt T., M.D., Brown, D. Nello, M.D. and Redmond, Robert F., M.D., Extracervical Cancer Detection by Fluorescent Cytology (SA) .....	772
Farr, Charles H., Ph.D., Possible Mechanisms of Actions of Digitalis in Cardiac Muscle (S) .....	138	Johnson, Peggy, R.N., Faggella, Mary Lou, R.N., Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S) .....	15
Foerster, D. W., M.D., and Richardson, W.R., M.D., Causes of Burns in Oklahoma (S) .....	713	Johnson, Philip C., M.D., and Smith, Carl W., M.D., The Role of Radioisotopes in Clinical Diagnosis (S) .....	20
Fulton, James Street, Ph.D., The Oklahoma Art Center: An Invitation to the Enjoyment of Learning (SA) .....	92	Johnson, W. Tom, M.D., Honska, Walter L., Jr., M.D., and Hammarsten, James F., M.D., Scalene Node Biopsy (S) .....	28

Jordan, Robert A., M.D., Digitalis Therapy in Congestive Heart Failure (SA) .....	778	Reynolds, Joe Bills, Fibrinolytic Activity in the Body (S) .....	593
Kent, Herbert, M.D., Medical Aspects of Aging in England and Oklahoma (SA) .....	161	Richardson, William R., M.D., Snyder, David M. D., Williams, G. Rainey, M.D., Cayler, Glenn G., M.D., Campbell, Gilbert S., M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S) .....	221
Kent, Herbert, M.D., "What Are We Doing for Our Stroke Patients?" (S) .....	522	Richardson, W. R., M.D., and Foerster, D.W., M.D., Causes of Burns in Oklahoma (S) .....	713
Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., A Clinical Study of Hypothermic Perfusion (S) .....	671	Riley, Harris D., Jr., M.D., The Problem of Perinatal Morbidity and Mortality (S) .....	128
King, Robert W., M.D., The Visually Handicapped or Are They? (S) .....	302	Russell, G. R., M.D., Shackelford, John H., M.D., Shackelford, Margaret, M.S., Perinatal Mortality Rates in Oklahoma Hospitals in 1956-1957 (S) .....	663
Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., A Study of Hypothermic Perfusion (S) .....	671	Saied, William R., and Gallagher, C. A., M.D., Cooperation Between the Attorney and the Doctor (SA) .....	395
Laufer, Maurice, M.D., Denhoff, Eric, M.D., and Holden, Raymond H., M.A., Syndromes of Cerebral Dysfunction (S) .....	360	Shackelford, John H., M.D., Russell, G. R., M.D., and Shackelford, Margaret, M.S., Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957 (S) .....	663
Lhotka, John F., M.D., Histochemical Commentary (S) .....	535	Shackelford, Margaret, M.S., Shackelford, John H., M.D., Russell, G. R., M.D., Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957 (S) .....	663
Lowbeer, Leo, M.D., Clapper, Muir, M.D., and Wermer, Paul, M.D., Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death (S) .....	726	Shands, A. R., Jr., M.D., The Keynote Address, Nemours Foundation Conference (S) .....	370
Lowbeer, Leo, M.D., The Residency Problem in Oklahoma (SA) .....	158	Smith, Carl W., M.D., and Johnson, Philip C., M.D., The Role of the Radioisotopes in Clinical Diagnosis (S) .....	20
Lowell, James R., M.D., Pleural Effusion: A Study of the Literature (S) .....	510	Snelson, Paul A., Recent Advances and Objectives of the Nursing Home (SA) .....	325
Lowell, James R., M.D., Pleural Effusion: A Study of Literature (S) .....	582	Snelson, Paul A., The State Agency Evaluates Hospital Planning (SA) .....	612
McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, A Study of Hypothermic Perfusion (S) .....	671	Snyder, David, M.D., Williams, G. Rainey, M.D., Cayler, Glenn G., M.D., Richardson, William R., M.D., and Campbell, Gilbert S., M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S) .....	221
Menguy, Rene, M.D., Ph.D., and Compton, Mrs. Esther, Medical-Surgical Conference (S) .....	147	Snyder, Laurence H., Sc.D., Fifty Years of Medical Genetics (SA) .....	250
Menguy, Rene, M.D., Ph.D., Editor, Chronic Emphysema and Cor pulmonale with Duodenal Ulcer (S) .....	315	Stough, A. R., M.D., The Use of a New Surfactant (Superinone) with a Purified Hemicellulose in the Treatment of Chronic Constipation (S) .....	134
Menguy, Rene, M.D., Hyperinsulinism (SA) .....	796	Stough, Austin R., M.D., The Treatment of Primary Dysmenorrhea with Chlormezanone (Trancopal®) (S) .....	575
Mock, David C., Jr., M.D., Coronary Disease, Corn Oil and Confusion (S) .....	79	Vickers, Paul M., M.D., and Denny, Ralph C., M.D., Malignancy of the Rectum and Sigmoid Colon (S) .....	307
Monnet, J. Charles, M.D., Osteochondritis Deformans (S) .....	376	Waskowitz, William Jay, M.D., Malignant Soft Tissue Tumors, A Ten Year Study from 1949 to 1959 at the University of Oklahoma Medical Center (S) .....	734
Morse, James O., M.D., Sarcoidosis with Joint Involvement (S) .....	676	Welsh, Jack D., M.D., (Edited by) Torula Meningitis Treated with Amphotericin B (S) .....	681
Moseley, Arnold, Don't Be Duped by the Ad-dict's Bag of Tricks (S) .....	309	Welsh, Jack D., M.D., Editor, Myxoedematous Goiter Associated with Thiocyanate Intoxication (S) .....	228
Namiki, Hideo, M.D., Giant Cell Pneumonia (S) .....	311		
Payne, R. W., M.D., Basic Science Brief: The Androgens (S) .....	461		
Prien, Edwin L., Clinical Aspects of the Kidney Stone Problem (S) .....	3		
Redmond, Robert F., M.D., Hunter, DeWitt T., M.D. and Brown, D. Nello, M.D., Extracervical Cancer Detection by Fluorescent Cytology (SA) .....	772		



Webb, James, M.D., and Williams, G. Rainey, M.D., Arterio-Venous Fistula: Rupture of Abdominal Aortic Aneurysm in the Vena Cava (S).....	387
Wermer, Paul, M.D., Clapper, Muir, M.D., and Lowbeer, Leo, M.D., Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death (S).....	726
Williams, G. Rainey, M.D., and Webb, James, M.D., Arterio-Venous Fistula: Rupture of Abdominal Aortic Aneurysm in the Vena Cava (S).....	387
Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Montroy, John, M.D., Redmond, Robert, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., A Clinical Study of Hypothermic Perfusion (S).....	671
Zuhdi, Nazih, M.D., Greer, Allen E., M.D., Carey, John M., M.D., Aneurysms of the Aorta (S).....	587
Zuhdi, Nazih, M.D., Carey, John M., M.D., Greer, Allen E., M.D., Johnson, Peggy, R.N., and Faggella, Mary Lou, R.N., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S).....	15

—B—

Baker, Alfred T., M.D. (Pic).....	168
Baker, Alfred T., M.D. (Pic).....	334
Baker, A. T., M.D., President; Brown, Walter E., M.D., President-Elect (GN).....	334
Baker, R. C., M.D. (Pic).....	197
Bargen, J. Arnold, M.D., Inflammatory Disease of the Small Intestine (S).....	439
Barnet, Charlie (Pic).....	182
Basic Human Right, A (E).....	127
Basic Science Brief: The Androgens, Payne, R. W., M.D., (S).....	461
Berry, Thomas M., M.D. (D).....	121
Biophysical Principles of Electrocardiography, Bayley, Robert H. (BR).....	89
Bitting, B. T., M.D. (D).....	210
Blachly, Lucile Spire, M.D. (D).....	352
Blood Dyscrasias and Drugs (E).....	214
Blue Cross County Utilization Rates (GN).....	342
Blue Cross Percentage Utilization by County (GN).....	567
Blue Cross Percentage Utilization by County (GN).....	822
Blue, Johnnie A., M.D. (Pic).....	168
Board of Contributing Editors Formed (GN).....	114
Boggs, Nathan, M.D. (D).....	707
Bone Tumors (BR).....	207
Books Received.....	207
Booth, George Randolph Sr., M.D. (D).....	62
Booth, John E., Veterans Our Biggest Privileged Class (SA).....	36
Bracken, Everett C., Ph.D. (Pic).....	744
Braden, Barbara Foster, M.D. (Pic).....	744

Bronson, E. D., L.L.B. (Pic).....	174
Brown, Charles H., M.D., Medical Treatment of the "Surgical" or Complicated Peptic Ulcer (S).....	289
Brown, D. Nello, M.D., Hunter, DeWitt, M.D., and Redmond, Robert F., M.D., Extracervical Cancer Detection by Fluorescent Cytology (SA).....	772
Brown, Gerster W., M.D. (D).....	707
Brown, Irwin H., M.D. (Pic).....	699
Brown to Head Surgeon's Group (GN).....	699
Brown, Walter E., M.D. (Pic).....	334
Browne, Henry S., M.D., Transurethral Resection of Non-Infiltrating Carcinoma of the Bladder (S).....	358
Brunsting, Louis A., M.D., Dermatomyositis and Systemic Lupus Erythematosus in Childhood (S).....	9
Burke, Richard E., M.D., Present Day Treatment of Tuberculosis (S).....	455
Burns, Dixon N., M.D., Genital Tract Discharge (S).....	18
Burton, John Flack, M.D. (Pic).....	61
Bussey, H. N., M.D. (Pic).....	341
Buxton, Robert W., M.D. (Pic).....	174

BOOK REVIEWS

Biophysical Principles of Electrocardiography, Bayler, Robert H.....	89
Bone Tumors.....	207
Textbook of Surgery (3rd Edition).....	640
Therapeutic Radiology.....	640

—C—

Calhoon, Harold W., M.D. (Pic).....	472
Campbell, Gilbert S., M.D., Cayler, Glenn G., M.D., Richardson, William R., M.D., Snyder, David, M.D., and Williams, G. Rainey, M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S).....	221
Campbell, Rita, Ph.D. (Pic).....	756
Cancer of the Prostate Complicated by Hemorrhagic Diathesis, Medical Surgical Conference (S).....	593
Cancer of the Tongue, Grimm, Clark A., M.D. (S).....	721
Canton Steps Out for a Doctor (GN).....	693
Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., A Study of Hypothermic Perfusion (S).....	671
Carey, John M., M.D., Greer, Allen E., M.D., Zuhdi, Nazih, M.D., Aneurysms of the Aorta (S).....	587
Carey, John M., M.D., Zuhdi, Nazih, M.D., Greer, Allen E., M.D., Johnson, Peggy, R.N., and Faggella, Mary Lou, R.N., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S).....	15
Causes of Burns in Oklahoma, Foerster, D. W., M.D., and Richardson, W. R., M.D. (S).....	713
Cayler, Glenn G., M.D., Campbell, Gilbert, M.D., Richardson, William R., M.D., Snyder, David, M.D., and Williams, G. Rainey, M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S).....	221



Caylor, Glen G., M.D., Selection of Pediatric Patients for Cardiac Diagnostic and Surgical Procedures (S)	446
CCC Transfer Prompts Council Meeting (GN)	199
Chance for a Stay of Execution, A (E)	355
Chatham, Beverly C., M.D., A Ten-Year Experience with Caesarean Section in a 50-Bed Hospital (S)	507
Child Study Center, Children's Memorial Hospital (E)	573
Chronic Emphysema and Corpulmonale with Duodenal Ulcer, Menguy, Rene, M.D., Ph.D., Editor (S)	315
Chumley, C. P., M.D. (D)	210
The Citation (GN)	554
The Citation—Medico Legal Briefs (GN)	191
Clapper, Muir, M.D., Lowbeer, Leo, M.D., and Wermer, Paul, M.D., Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death (S)	726
Clark, Patricia Ann (Pic)	698
Clinical Aspects of the Kidney Stone Problem, Prien, Edwin L., M.D. (S)	3
Clinical Study of Hypothermic Perfusion, A, Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Montroy, John, M.D., Redmond, Robert, M.D., Carey, John, M.D., Geigerman, David, M.D., and Krieger, Carl, M.D. (S)	671
Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death, Lowbeer, Leo, M.D., Clapper, Muir, M.D., and Wermer, Paul, M.D. (S)	726
Coats, Louise (Pic)	340
Community Approach to the "Senior Citizens" Problem, A, DeVore, John W., M.D. (SA)	261
Compton, Mrs. Esther and Menguy, Rene, M.D., Ph.D., Medical-Surgical Conference (S)	147
Compton, Mrs. Esther and Menguy, Rene, M.D., Ph.D., Medical-Surgical Conference, Pheochromocytoma (S)	239
Conference on Handicapped Children Held (GN)	268
Conference on Handicapped Children Scheduled for March (GN)	101
Contraindications for Radical Mastectomy (E)	771
Cook, Jim (Pic)	494
Cook, William H., M.D. (D)	569
Cooperation Between the Attorney and the Doctor, Gallagher, C. A., M.D., and Saied, William R. (SA)	395
Coronary Disease, Cholesterol, Corn Oil and Confusion, Mock, David C., Jr., M.D. (S)	79
Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator, Campbell, Gilbert S., M.D., Caylor, Glenn G., M.D., Richardson, William R., M.D., Snyder, David, M.D., and Williams, G. Rainey, M.D. (S)	221
Cotner, Norman A., M.D. (Pic)	472
Cotner, Norman A., M.D. (Pic)	473
Council Likes Blue Shield Plan for Senior Citizens (GN)	816
Council Meets for Interim Session (GN)	115
Cover Picture of the Orange Bowl and Why, The (E)	1

Cox, James A., M.D. (Pic)	322
Cuddy, T. Edward, M.D., Dyspnea in Congestive Heart Failure (S)	579
Cummings, Martin M., M.D., (Pic)	687
"Cure of Breadwinner Blues, A" (GN)	340

—D—

Dallas Rapidly Becoming Leading Convention City (GN)	697
Date Set for Southeastern Clinical Symposium (GN)	489
Davis, William D., Jr., M.D. (Pic)	174
DeBakey, Michael Ellis, M.D. (Pic)	817
DeBakey to Appear on Annual Meeting Panel (GN)	817
DeCosta, Edwin J., M.D., Modern Concepts of Prenatal Care (S)	69
Delegates Report on AMA Interim Meeting (GN)	53
Delegates Report on AMA Meeting (GN)	565
Delegates Say No to Service Contract for Old Folks (GN)	555
Democratic Council Favors Forand (GN)	43
Denhoff, Eric, M.D., Laufer, Maurice, M.D., and Holden, Raymond H., M.A., Syndromes of Cerebral Dysfunction (S)	360
Denny, Ralph C., M.D., and Vickers, Paul M., M.D., Malignancy of the Rectum and Sigmoid Colon (S)	307
Denver to Host Southwestern Surgical Congress (GN)	103
Dermatomyositis and Systemic Lupus Erythematosus in Childhood, Brunsting, Louis A., M.D. (S)	9
Development and Purpose of Blood Dyscrasias (E)	574
DeVore, John W., M.D., A Community Approach to the "Senior Citizens" Problem (SA)	261
DeVore, Mary (Pic)	340
Digitalis Therapy in Congestive Heart Failure, Jordan, Robert A., M.D.	778
Directory, 1959, Roster Scheduled for February (GN)	60
"Doctor Business, The" (E)	1
Doctor Donahue Resigns Mental Health Post (GN)	624
Doctors Go on BC "County Rating Program" (GN)	697
Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., A Clinical Study of Hypothermic Perfusion (S)	671
Donnell, John J., M.D., The Pathogenesis of Congestive Heart Failure (S)	451
Don't Be Duped by the Addict's Bag of Tricks, Mosley, Arnold (S)	309
Downey, Dennis S., M.D. (D)	497
DPW Problems Answered (GN)	202
Dyer, Isadore, M.D. (Pic)	173
Dyspnea in Congestive Heart Failure, Cuddy, T. Edward, M.D. (S)	579

DEATHS

Berry, Thomas M., M.D.	121
Bitting, B. T., M.D.	210
Blachly, Lucile Spire, M.D.	352

Boggs, Nathan, M.D.	707
Booth, George Randolph Sr., M.D.	62
Brown, Gerster W., M.D.	707
Chumley, C. P., M.D.	210
Cook, William H., M.D.	569
Downey, Dennis S., M.D.	497
Fishman, C.J., M.D.	638
Fleetwood, D. H., M.D.	352
Fuqua, William Arthur, M.D.	497
Gregg, O. R., M.D.	707
Hathaway, Alfred Hilliary, M.D.	497
Hennings, Albert E., M.D.	283
Howell, O. E., M.D.	707
Hubbard, Ralph, M.D.	410
Hudson, Fred A., M.D.	410
Kerley, William Wilbrun, M.D.	210
Lamb, Ellis, M.D.	497
LaMotte, George A., M.D.	210
Loughmiller, Robert F., M.D.	707
McBrayer, William H., M.D.	569
McCalib, David C., M.D.	352
McGovern, Joseph Dunn, M.D.	410
Mabry, William Lewis, M.D.	352
Melton, A. S., M.D.	283
Moreland, James Thaddeus, M.D.	62
Oakes, Charles G., M.D.	762
Oesterreicher, Donald Lawson, M.D.	569
Ohl, Charles Wallis, M.D.	569
O'Leary, Daniel William, M.D.	283
Paulson, Alvin W., M.D.	283
Pierson, O. A., M.D.	638
Postelle, Joseph M., M.D.	410
Rice, O. W., M.D.	210
Richey, Sidney Moore, M.D.	569
Riely, Lea A., M.D.	497
Rogers, Charles L., M.D.	210
Taylor, Charles Benjamin, M.D.	352
Thuringer, Joseph M., M.D.	762
Vandever, Harl F., M.D.	283
Wiley, Alvin Ray, M.D.	283
Wiley, George Adrian, M.D.	410

—E—

Eight Accept Annual Meeting Invitations (GN)	53
Eliel, Leonard P., M.D., Geriatric Research in Oklahoma (SA)	469
Endocrine Society Names Turner as Schering Scholar (GN)	492
Ent, Patricia (Pic)	340
Evaluation of the Practice of Internal Medicine, The (E)	356
Everett, Mark Allen, M.D. and Alston, Herman D., M.D., Griseofulvin Therapy of Superficial Cutaneous Mycoses (SA)	793
Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma, Zuhdi, Nazih, M.D., Carey, John M., M.D., Green, Allen E., M.D., Johnson, Peggy, R.N., and Faggella, Mary Lou, R.N. (S)	15

Extracervical Cancer Detection by Fluorescent Cytology, Hunter, DeWitt T., M.D., Brown, D. Nello, M.D., and Redmond, Robert F., M.D.	772
--	-----

EDITORIALS

Address of the Honorable Orville L. Freeman, Governor of the State of Minnesota	216
Art Centers of Oklahoma	67
A Basic Human Right	127
Blood Dyscrasias and Drugs	214
Chance for a Stay of Execution, A	355
Child Study Center, Children's Memorial Hospital	573
Contraindications for Radical Mastectomy	771
Cover Picture of the Orange Bowl and Why, The	1
Development and Purpose of the Registry of Blood Dyscrasias	574
"Doctor Business, The"	1
Evaluation of the Practice of Internal Medicine, The	356
Fluorescent Microscopy—A New Aid in Diagnostic Laboratory Medicine	769
Health Insurance for Senior Citizens	287
News Item	505
Oklahoma's Medical History	126
On Medical Education	67
Principles of Medical Ethics	711
Quo Vadis	287
Service Contracts for Elderly Citizens	215
Sleepy Giant?, A	506
Space Medicine	125
Statement at the Committee Hearings in the House of Representatives on S.B. 20, A	213
The Syndrome of Cerebral Dysfunction	355
Tuberculosis and the Family Physician	454
Voice of the Taxpayer	573
We Are Playing for Keeps	437
Youthful Offenses in Modern Culture	643

—F—

Faggella, Mary Lou, R.N., Johnson, Peggy, R.N., Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Experimental Background for Open Heart Surgery at University Hospital in Oklahoma City, Oklahoma (S)	15
Fagella, Robert M., M.D. (Pic)	472
Farr, Charles H., Ph.D., Possible Mechanisms of Actions of Digitalis in Cardiac Muscle (S)	138
Farris, Edward N., M.D. (Pic)	472
February Meeting Scheduled by Oklahoma AAGP (GN)	819
Fibrinolytic Activity in the Body, Reynolds, Joe Bills (S)	593
Fifty Years of Medical Genetics, Snyder, Laurence H., Sc.D. (SA)	250
Film on Management of Strokes Issued by Heart Association (GN)	823
First National Conference on Medical Aspects of Sports Injuries to Be Held in Dallas (GN)	617



Fisher, Pearl Davidowitz, M.D. (Pic)	322
Fishman, C. J., M.D. (D)	638
Five From Jackson County Join Fifty Year Club (GN)	341
Fleetwood, D. H., M.D. (D)	352
Fluorescent Microscopy—A New Aid in Diagnostic Laboratory Medicine (E)	769
Flying Physicians Plan Alaskan Cruise (GN)	339
Foerster, D. W., M.D., and Richardson, W. R., M.D., Causes of Burns in Oklahoma (S)	713
Foerster, Hervey A., M.D. (Pic)	404
Forand Bill Introduced, 1959 (GN)	195
Ford, H. W., M.D. (Pic)	700
Fox, R. H., M.D. (Pic)	341
Funnell, James D., M.D., The Metabolic Response to Trauma (SA)	786
Fuqua, William Arthur, M.D. (D)	497

—G—

Gallagher, C. A., M.D., and Saied, William R., Cooperation Between the Attorney and the Doctor (SA)	395
Gastritis and Hemorrhage, Avey, Thompson H., M.D. (S)	75
Gatchell, Frank Gaffney, M.D. (Pic)	609
Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., A Study of Hypothermic Perfusion (S)	671
Genital Tract Discharge, Burns, Dixon N., M.D., (S) 18	
Geriatric Research in Oklahoma, Eliel, Leonard P., M.D. (SA)	469
Giant Cell Pneumonia, Namiki, Hideo, M.D. (S)	311
Ginn, H. Earl, M.D., The Use of Extracorporeal Hemodialysis: Artificial Kidney (S)	527
Goodwin, R. Q., M.D. (Pic)	280
Correll, John Franklin, M.D. (Pic)	202
Graham, Dick (Pic)	405
Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., A Clinical Study of Hypothermic Perfusion (S)	671
Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Aneurysms of the Aorta (S)	587
Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Johnson, Peggy, R.N., and Faggella, Mary Lou, R.N., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S)	15
Gregg, O. R., M.D. (Pic)	280
Gregg, O. R., M.D. (D)	707
Griseofulvin Therapy of Superficial Cutaneous Mycoses, Everett, Mark Allen, M.D., and Alston, Herman D., M.D.	793
Grimm, C. A., M.D. (Pic)	472
Grimm, Clark A., M.D., Cancer of the Tongue (S)	721
Gunderson, Gunnar, M.D. (Pic)	172
Gunderson, Gunnar, M.D., An Age-Old Problem (S)	367

—H—

Hammarsten, James F., M.D., Honska, Walter L., Jr., M.D., and Johnson, W. Tom, M.D., Scalene Node Biopsy (S)	28
Hampton, James W., M.D. (Pic)	473
Hart, Marshall O., M.D. (Pic)	700
Hathaway, Alfred Hilliary, M.D. (D)	497
Haynes, William, M.D. (Pic)	405
Hays, Luvern, M.D. (Pic)	700
Healdton Nurse Wins Lottinville Award (GN)	698
Health and Accident Program Gains Momentum (GN)	198
Health and Accident Program is Changed (GN)	52
Health Insurance for Senior Citizens	287
Heatley, John E., M.D. (Pic)	806
Helland, N. D. (Pic)	756
Henley, Thomas H., M.D., Rotary Power Lawn Mower Injury: Perforation of the Stomach (S)	86
Hennings, Albert E., M.D. (D)	283
Herbelin, Joseph Ted, M.D. (Pic)	392
Hicks, Melvin C., M.D. (BR)	640
Histochemical Commentary, Lhotka, John F., Jr., M.D. (S)	535
Holden, Raymond, M.A., Laufer, Maurice, M.D., and Denhoff, Eric, M.D., Syndromes of Cerebral Dysfunction (S)	360
Honska, Walter L., Jr., M.D., Johnson, W. Tom, M.D., and Hammarsten, James F., M.D., Scalene Node Biopsy (S)	28
Honska, Walter Lee, Jr., M.D. (Pic)	744
Hoover, Wilkie D., M.D. (Pic)	202
Houchin, Ollie Boyde, Ph.D. (Pic)	247
House of Delegates (Pic)	400
House Staff Physicians Will Meet May 22 (GN)	330
Howard, Frank H., M.D., Problem of Massive Upper GI Hemorrhage with Emphasis on Peptic Ulcer (S)	234
Howell, O. E., M.D. (D)	707
Hubbard, Ralph, M.D. (D)	410
Hudnut, Herbert Beecher, Jr., M.D. (Pic)	806
Hudson, Fred A., M.D. (D)	410
Huggins, Charles B., M.D. (Pic)	173
Hunter, DeWitt T., M.D., Brown, D. Nello, M.D., and Redmond, Robert F., M.D., Extracervical Cancer Detection by Fluorescent Cytology (SA)	772
Husen, Luiese (Pic)	609
Hyperinsulinism, Menguy, M.D. (S)	796

—I—

Index to Contents	828
Inflammatory Disease of the Small Intestine, Barga, J. Arnold, M.D. (S)	439
Insurance for Senior Citizens Under Study (GN)	690

—J—

"Jack of All Trades" (GN)	705
James P. Jobe, M.D., Honored (GN)	277



Jobe, James P., M.D. (Pic)	277
Johnson, Colonel Robert (Pic)	404
Johnson, E. A., M.D., Honored (GN)	692
Johnson, Peggy, R.N., Fagella, Mary Lou, R.N., Greer, Allen E., M.D., Carey, John M., M.D., Zuhdi, Nazih, M.D., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City (S)	15
Johnson, Philip C., M.D., and Smith, Carl W., M.D., The Role of Radioisotopes in Clinical Diagnosis (S)	20
Johnston, Richard Eugene (Pic)	744
Johnson, W. Tom, M.D., Honska, Walter L., Jr., M.D., and Hammarsten, James F., M.D., Scalene Node Biopsy (S)	28
Jordan, Robert A., M.D., Digitalis Therapy in Congestive Heart Failure (SA)	778
Julian, Ormand C., M.D. (Pic)	173

—K—

Kavan, L. C., M.D. (Pic)	609
Keele, Marjorie S., M.D. (Pic)	247
Kent, Herbert, M.D., Medical Aspects of Aging in England and Oklahoma (SA)	161
Kent, Herbert, M.D., "What Are We Doing for Our Stroke Patients?" (S)	522
Kerley, William Wilbrun, M.D. (D)	210
Keynote Address, The, Nemours Foundation Conference, Shands, A. R., Jr., M.D. (S)	370
Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., A Clinical Study of Hypothermic Perfusion (S)	671
King, Robert W., M.D., The Visually Handicapped or Are They? (S)	302
Kirkham, William R., Ph.D., M.D. (Pic)	402
Kirkham, Henry Neil, M.D. (Pic)	744
Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., A Study of Hypothermic Perfusion (S)	671
Kyriacopoulos, John, M.D. (Pic)	472

—L—

Lee, Norman K., M.D. (Pic)	744
Leslie, Samuel B., M.D. (Pic)	609
Lamb, Ellis, M.D. (D)	497
LaMotte, George A., M.D. (D)	210
Laufer, Maurice, M.D., Denhoff, Eric, M.D., and Holden, Raymond H., M.A., Syndromes of Cerebral Dysfunction (S)	360
Letters to the Editor (GN)	475
Lhotka, John F., M.D., Histochemical Commentary (S)	535
Lindley Hospital Opened in Duncan (GN)	559

Loan Fund Established by Garfield-Kingfisher Society (GN)	197
Loughmiller, Robert F., M.D. (D)	707
Lowbeer, Leo, M.D., Clapper, Muir, M.D., and Wermer, Paul, M.D., Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death (S)	726
Lowbeer, Leo, M.D., The Residency Problem (SA)	158
Lowell, James R., M.D., Pleural Effusion: A Study of the Literature (S)	510
Lowell, James R., M.D., Pleural Effusion: A Study of Literature (S)	582
Lynch, R. H., M.D. (Pic)	494
Lynch, R. H., and OSMA Recognized (GN)	492

—M—

Mabry, E. W., M.D. (Pic)	341
Mabry, William Lewis, M.D. (D)	352
Maguire, Hugh Francis, D.D.S. (Pic)	466
Maier, Edwin R., M.D., Bone Tumors (BR)	207
Malignancy of the Rectum and Sigmoid Colon, Vickers, Paul M., M.D., and Denny, Ralph C., M.D. (S)	307
Malignant Soft Tissue Tumors, A Ten Year Study from 1949 to 1959 at the University of Oklahoma Medical Center, Waskowitz, William Jay, M.D. (S)	734
Mason, Michael L., M.D. (Pic)	173
Martin, Chesley M., M.D. (Pic)	752
Martin, Chesley M., M.D. (Pic)	753
Martin, Chesley M., M.D. (Pic)	811
Martin, Chesley M., M.D. (Pic)	812
Martin, Chesley M., M.D. (Pic)	813
Mayo Hotel (Pic)	170
McBrayer, William H., M.D. (D)	569
McCalib, David C., M.D. (D)	352
McCollough, Bill, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, A Study of Hypothermic Perfusion (S)	671
McCullagh, E. Perry, M.D. (Pic)	110
McCullagh, E. Perry, M.D. (Pic)	172
McDonald, P. Robb, M.D. (Pic)	172
McDonnold, George F., M.D. (Pic)	609
McGovern, Joseph Dunn, M.D. (D)	410
McNamara Hearings Swerve to the Left (GN)	751
Medical Aspects of Aging in England and Oklahoma, Kent, Herbert, M.D. (SA)	161
Medical-Surgical Conference, Menguy, Rene, M.D., Ph.D., and Compton, Mrs. Esther (S)	147
Medical-Surgical Conference, Pheochromocytoma, Menguy, Rene, M.D., Ph.D., and Mrs. Esther Compton (S)	239
Medical Treatment of the "Surgical" or Complicated Peptic Ulcer, Brown, Charles H., M.D. (S)	289
Medical Sciences Hall of Fame Inducts Twenty-three (GN)	818
Medicare Brass Alarmed About Billings (GN)	276

Medicare Clarifies Policies on Malignancies (GN)	474
Melton, A. S., M.D. (D)	283
Menguy, Rene, M.D., Ph.D., Editor, Chronic Emphysema and Corpulmonale with Duodenal Ulcer (S)	315
Menguy, Rene, M.D., Hyperinsulinism (SA)	796
Menguy, Rene, M.D., Ph.D., and Compton, Mrs. Esther, Medical-Surgical Conference (S)	147
Menguy, Rene, M.D., Ph.D., and Compton, Mrs. Esther, Medical-Surgical Conference, Pheochromocytoma (S)	239
The Metabolic Response to Trauma, Funnell, James D., M.D. (S)	786
Millikan, Clark H., M.D. (Pic)	174
Milk-Alkali Syndrome of Hyperparathyroidism? Medical Surgical Conference (S)	739
Mock, David C., Jr., M.D., Coronary Disease, Corn Oil and Confusion (S)	79
Model Nursing Home Opened in Coalgate (GN)	691
Modern Concepts of Prenatal Care, DeCosta, Edwin J., M.D. (S)	69
Mohler, E. C., M.D. (Pic)	168
Monnet, J. Charles, M.D., Osteochondritis Deformans (S)	376
Moore, Edward L., M.D. (Pic)	169
Moorman, J. Floyd, M.D. (Pic)	340
Moreland, James Thaddeus, M.D. (D)	62
Morse, James O., M.D., Sarcoidosis with Joint Involvement (S)	676
Moseley, Arnold, Don't Be Duped by the Addict's Bag of Tricks (S)	309
Movie Tags Medical Assistant as "Doctor's PR Ambassador" (GN)	818
Muenzler, Mrs. W. Stanley (Pic)	402
Myxoedematous Goiter Associated with Thiocyanate Intoxication, Welsh, Jack D., M.D. (S)	228

#### MEDICAL CENTER

Abstracts	804
Abstracts -- 31, 155, 245, 321, 391, 545, 608, 745	745
Book Review (MC)	89
Cummings to Head Department of Microbiology	687
Eleven Appointments Approved by Regents	744
Faculty Additions	392
Faculty News	33, 88, 157, 322, 609
Message from the Dean	675, 733
Message from the Dean	792
OU School of Medicine Awards 92 Degrees	465
Regents Approve Two Appointments	546
Two New Faculty Members	247

#### -N-

Namiki, Hideo, M.D., Giant Cell Pneumonia (S)	311
National SAMA Elects Two Oklahomans (GN)	402
Nations, Frankie Nell, M.D. (Pic)	744
Nelson, Arnold G., M.D. (Pic)	473
New Ardmore Sanitarium and Hospital Opened (GN)	563
New Committee Structure Announced (GN)	626

New Srigley Clinic Opened in Altus (GN)	620
News Item (E)	505
Nine House Staff Physicians Receive Awards (GN)	472
Nine Speakers Agree to Annual Meeting Talks (GN)	757
Noted Psychiatrist to Address Student AMA (GN)	695

#### -O-

OAGP and Medical Center Plan Symposium (GN)	550
Oakes, Charles G., M.D. (D)	762
Oesterreicher, Donald Lawson, M.D. (D)	569
Officers and Councilors of the Oklahoma Medical Association 1959-60 (GN)	629
Ohl, Charles Wallis, M.D. (D)	569
Oklahoma Art Center, The: An Invitation to the Enjoyment of Learning, Fulton, James Street, Ph.D., (SA)	92
Oklahoma Assistant Heads National Group (GN)	61
Oklahoma City Clinical Society Announces Program (GN)	619
Oklahoma Medics Visit with Congressmen (GN)	483
Oklahoma's General Practitioner of the Year (GN)	752
Oklahoman to Serve on White House Conference Committee (GN)	401
Oklahomans Provide National Leadership for Medical Assistants (GN)	549
Oklahoma's Medical History (E)	126
Oklahoma Pharmacy Dean Honored (GN)	267
O'Leary, Daniel William, M.D. (D)	283
"Old Age and You" Telecast Big Success (GN)	756
On Medical Education (E)	67
Orr, Louis M., M.D. (Pic)	756
OSMA, Others Favor Radiation Bill (GN)	273
Osteochondritis Deformans, Monnett, J. Charles, M.D. (S)	376
OU to Offer Course in Radioisotope Techniques (GN)	701

#### -P-

Parsons, Oscar Albert, Ph.D. (Pic)	744
Paulus, D. D., M.D. (Pic)	61
Paulson, Alvin W., M.D. (D)	283
Parsons, Willard H., M.D. (Pic)	175
Pathogenesis of Congestive Heart Failure, The, Donnell, John J., M.D. (S)	451
Payne, R. W., M.D., Basic Science Brief: The Androgens (S)	461
Pediatric Conference Planned by Hillcrest (GN)	552
Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957, Shackelford, John H., M.D., Russell, G. R., M.D., and Shackelford, Margaret, M.S. (S)	663
Phelps to Tour Far East Hospitals (GN)	630
Pierson, O. A., M.D. (D)	638
Plans Formulated for Third Oklahoma Colloquy (GN)	757
Pleural Effusion: A Study of the Literature, Lowell, James R., M.D. (S)	510
Pleural Effusion: A Study of Literature, Lowell, James R., M.D. (S)	582



Plans Announced for Oklahoma City Clinical Society (GN).....	562
Possible Mechanisms of Actions of Digitalis in Cardiac Muscle, Farr, Charles H., Ph.D. (S).....	138
Post Operative Reaction Following Mitral Commissurotomy, Austin, Frank H., M.D. (S).....	651
Postelle, Joseph M., M.D. (D).....	410
Practical Nursing Program Needs Financial Boost (GN).....	44
Prien, Edwin L., M.D., Clinical Aspects of the Kidney Stone Problem (S).....	3
Present Day Treatment of Tuberculosis, Burke, Richard E., M.D. (S).....	455
Principles of Medical Ethics (E).....	711
Proceedings of the Special Session of the House of Delegates (GN).....	631
Problem of Perinatal Morbidity and Mortality, The, Riley, Harris D., Jr., M.D. (S).....	128
Proceedings of the 53rd Annual Session of the House of Delegates of the Oklahoma State Medical Association, April 19, 1959, Opening Session (GN).....	400
Proceedings of the 53rd Annual Session of the House of Delegates of the Oklahoma State Medical Association, April 19, 1959, Closing Session (GN).....	501
Program Completed for OAGP and Medical Center Symposium (GN).....	618
Price, Richard Brooke, M.D. (Pic).....	322
Problem of Massive Upper GI Hemorrhage With Emphasis on Peptic Ulcer, Howard, Frank H., M.D. (S).....	234
Public Hearing Concluded on Forand Bill (GN).....	557

—Q—

Quo Vadis (E).....	287
--------------------	-----

—R—

Recent Advances and Objectives of the Nursing Home (SA).....	325
Redmond, Robert F., M.D., Hunter, DeWitt, M.D. and Brown, D. Nello, M.D., Extracervical Cancer Detection by Fluorescent Cytology (SA).....	772
Report of AMA Actions (GN).....	486
Residency in Preventive Medicine and Public Health to be Offered (GN).....	104
Residency Problem in Oklahoma, The, Lowbeer, Leo, M.D. (SA).....	158
Reynolds, Joe Bills, Fibrinolytic Activity in the Body (S).....	593
Rice, O. W., M.D. (D).....	210
Richardson, William R., M.D., Snyder, David, M.D., Williams, G. Rainey, M.D., Cayler, Glenn G., M.D., Campbell, Gilbert S., M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S).....	221

Richardson, W. R., M.D., and Foerster, D. W., M.D., Causes of Burns in Oklahoma (S).....	713
Richey, Sidney Moore, M.D. (D).....	569
Riely, Lea A., M.D. (D).....	497
Riley, Harris D., Jr., M.D., The Problem of Perinatal Morbidity and Mortality (S).....	128
Ritzhaupt Honored by State Senate (GN).....	562
Rogers, Charles L., M.D. (D).....	210
Role of Radioisotopes in Clinical Diagnosis, The, Smith, Carl W., M.D., and Johnson, Philip C., M.D. (S).....	20
Rotary Power Lawn Mower Injury: Perforation of the Stomach, Henley, Thomas H., M.D. (S).....	86
Russell, G. R., M.D., Shackelford, John H., M.D., and Shackelford, Margaret, Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957 (S).....	663
Russo, Peter E., M.D. (Pic).....	473

—S—

Saied, William R., and Gallagher, C. A., M.D., Cooperation Between the Attorney and the Doctor (SA).....	395
Samuel T. Moore, M.D., on Jordan Mission (GN).....	758
San Antonio Will Host International Medical Assembly (GN).....	819
Sarcoidosis with Joint Involvement, Morse, James O., M.D. (S).....	676
Saunders, John B. (Pic).....	472
Saunders, John B. (Pic).....	473
Scalene Node Biopsy, Honska, Walter L., Jr., M.D., Johnson, W. Tom, M.D., and Hammarsten, James F., M.D. (S).....	28
Schilling, John A., M.D., Textbook of Surgery (3rd Edition) (BR).....	640
Schmidt, Helen Hughes, M.D. (Pic).....	392
Selection of Pediatric Patients for Cardiac Diagnostic and Surgical Procedures, Caylor, Glen G., M.D. (S).....	446
Seminar Program Completed by Medical Assistants Society (GN).....	332
Service Contract to Highlight Annual Meeting (GN).....	271
Service Contracts for Elderly Citizens (E).....	215
Sevelius, Gunnar, M.D. (Pic).....	473
Sevelius, Gunnar, M.D. (Pic).....	472
Shackelford, John H., M.D., Russell, G. R., M.D., and Shackelford, Margaret, M.S., Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957 (S).....	663
Shackelford, Margaret, M.S., Shackelford, John H., M.D., Russell, G. R., M.D., Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957 (S).....	663
Shands, A. R., Jr., M.D., The Keynote Address, Nemours Foundation Conference (S).....	370
"She Went Thataway" (GN).....	114
Six M.D.'s Undertake National Legislative Program (GN).....	274
Six Muskogee Physicians Plan New Offices (GN).....	704
Sleepy Giant?, A (E).....	506
Sloan, Mary N., M.S.S. (Pic).....	466
SMA Will Hold November Meeting in Atlanta (GN).....	698



Smith, Carl W., M.D., and Johnson, Philip C., M.D., The Role of Radioisotopes in Clinical Diagnosis (S).....	20	Cancer of the Prostate Complicated by Hemorrhagic Diathesis, Medical Surgical Conference.....	593
Smith, Henry C., M.D. (Pic).....	753	Cancer of the Tongue, Grimm, Clark A., M.D. ....	721
Smith, Nathan J., M.D. (Pic).....	175	Causes of Burns in Oklahoma, Foerster, D. W., M.D. and Richardson, W. R., M.D. ....	713
Snelson, Paul A., Recent Advances and Objectives of the Nursing Home (SA).....	325	Chronic Emphysema and Cor pulmonale with Duodenal Ulcer, Menguy, Rene, M.D., Ph.D., Editor.....	315
Snelson, Paul A., The State Agency Evaluates Hospital Planning (SA).....	612	Clinical Aspects of the Kidney Stone Problem, Prien, Edwin L., M.D. ....	3
Snyder, David D., M.D. (Pic).....	472	Clinical Study of Hypothermic Perfusion, A, Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Montroy, John, M.D., Redmond, Robert, M.D., Carey, John, M.D., Geigerman, David, M.D., and Krieger, Carl, M.D. ....	671
Snyder, David D., M.D. (Pic).....	473	Clinicopathologic Conference: Abdominal Cramps, Vomiting, Shock and Unexpected Death, Lowbeer, Leo, M.D., Clapper, Muir, M.D., and Wermer, Paul, M.D. ....	726
Snyder, David, M.D., Williams, G. Rainey, M.D., Cayler, Glenn G., M.D., Richardson, William R., M.D., and Campbell, Gilbert S., M.D., Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator (S).....	221	Cooperation Between the Attorney and the Doctor, Gallagher, C. A., M.D., and Saied, William R. ....	395
Snyder, Laurence H., Sc.D., Fifty Years of Medical Genetics (SA).....	250	Coronary Disease, Cholesterol, Corn Oil and Confusion, Mock, David C., Jr., M.D. ....	79
Sorey, Tom (Pic).....	756	Correction of Congenital Cardiac Defects Utilizing the Pump Oxygenator, Campbell, Gilbert S., M.D., Cayler, Glenn G., M.D., Richardson, William R., M.D., Snyder, David, M.D., and Williams, G. Rainey, M.D. ....	221
Southwestern Surgical Congress Announces Essay Contest (GN).....	551	Dermatomyositis and Systemic Lupus Erythematosus in Childhood, Brunsting, Louis A., M.D. ....	9
Space Medicine (E).....	125	Digitalis Therapy in Congestive Heart Failure, Jordan, Robert A., M.D. ....	778
Speed, H. K., M.D. (Pic).....	341	Don't Be Duped by the Addict's Bag of Tricks, Moseley, Arnold.....	309
Speed, Henry K., Jr. (Pic).....	346	Dyspnea in Congestive Heart Failure, Cuddy, T. Eward, M.D. ....	579
Spickard, L. J. (Pic).....	405	Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma, Zuhdi, Nazih, M.D., Carey, John M., M.D., Greer, Allen E., M.D., Johnson, Peggy, R.N., and Faggella, Mary Lou, R.N. (S).....	15
Spickard, L. J., M.D., Honored (GN).....	405	Extracervical Cancer Detection by Fluorescent Cytology, Hunter, DeWitt T., M.D., Brown, D. Nello, M.D., and Redmond, Robert F., M.D. ....	772
Stahl, Steve (Pic).....	756	Fibrinolytic Activity in the Body, Reynolds, Joe Bills.....	593
State Agency Evaluates Hospital Planning, The, Snelson, Paul A. (SA).....	612	Gastritis and Hemorrhage, Avey, Thompson H., M.D. ....	75
State Heart Association Plans February PG Course (GN).....	823	Genital Tract Discharge, Burns, Dixon N., M.D. ....	18
State Science Academy Receives \$30,600.00 Grant to Aid Education (GN).....	403	Geriatric Research in Oklahoma, Eliel, Leonard P., M.D. ....	469
Statement at the Committee Hearings in the House of Representatives on S.B. 20, A (E).....	213	Giant Cell Pneumonia, Namiki, Hideo, M.D. ....	311
Steele, Byron W., Jr., M.D. (Pic).....	169	Griseofulvin Therapy of Superficial Cutaneous Mycoses, Everett, Mark Allen, M.D. and Alston, Herman D., M.D. ....	793
Stephens, Edward F., M.D. (Pic).....	280		
Stephenson, Jack, M.D. (Pic).....	472		
Stough, A. R., M.D., The Use of a New Surfactant (Superinone) with a Purified Hemicellulose in the Treatment of Chronic Constipation (S).....	134		
Stough, Austin R., M.D., The Treatment of Primary Dysmenorrhea with Chloromezanone (Trancopal®) (S).....	575		
SW States to Host AMA Meeting in Dallas (GN).....	625		
Swearingen, Lucille (Pic).....	61		
Syndrome of Cerebral Dysfunction, The (E).....	355		
Syndromes of Cerebral Dysfunction, Denhoff, Eric, M.D., Laufer, Maurice W., M.D., and Holden, Raymond H., M.A. (S).....	360		
<b>SCIENTIFIC ARTICLES</b>			
An Age-Old Problem, Gunderson, Gunnar, M.D. ....	367		
Aneurysms of the Aorta, Cary, John M., M.D., Greer, Allen E., M.D., Zuhdi, Nazih, M.D. ....	587		
Arterio-Venous Fistula: Rupture of Abdominal Aortic Aneurysm in the Vena Cava, Williams, G. Rainey, M.D., and Webb, James, M.D. ....	387		
Basic Science Brief: The Androgens, Payne, R. W., M.D. ....	461		

Histochemical Commentary, Lhotka, John F., M.D.	535
Hyperinsulinism, Menguy, Rene, M.D.	796
Inflammatory Disease of the Small Intestine, Bergen, J. Arnold, M.D.	439
Keynote Address, The, Nemours Foundation Conference, Shands, A. R., Jr., M.D.	370
Malignancy of the Rectum and Sigmoid Colon, Vickers, Paul M., M.D., and Denny, Ralph C., M.D.	307
Malignant Soft Tissue Tumors, A Ten Year Study from 1949 to 1959 at the University of Oklahoma Medical Center, Waskowitz, William Jay, M.D.	734
Medical-Surgical Conference, Menguy, Rene, M.D., Ph.D., and Compton, Mrs. Esther	147
Medical-Surgical Conference, Pheochromocytoma, Menguy, Rene, M.D., Ph.D. and Mrs. Esther Compton	239
Medical Treatment of the "Surgical" or Complicated Peptic Ulcer, Brown, Charles H., M.D.	289
The Metabolic Response to Trauma, Funnell, James D., M.D.	786
Milk-Alkali Syndrome or Hyperparathyroidism? Medical Surgical Conference	739
Modern Concepts of Prenatal Care, DeCosta, Edwin J., M.D.	69
Myxoedematous Goiter Associated with Thio-syanate Intoxication, Welsh, Jack D., M.D., Editor	228
Osteochondritis Deformans, Monnet, J. Charles, M.D.	376
Pathogenesis of Congestive Heart Failure, The, Donnell, John J., M.D.	451
Perinatal Mortality Rates in Oklahoma Hospitals 1956-1957, Shackelford, John H., M.D., Russell, G. R., M.D., and Shackelford, Margaret, M.S.	663
Pleural Effusion: A Study of the Literature, Lowell, James R., M.D.	510
Possible Mechanisms of Actions of Digitalis in Cardiac Muscle, Farr, Charles H., Ph.D.	138
Post Operative Reaction Following Mitral Commissurotomy, Austin, Frank H., M.D.	651
Pleural Effusion: A Study of Literature, Lowell, James R., M.D.	510
Pleural Effusion: A Study of Literature, Lowell, James R., M.D.	582
Present Day Treatment of Tuberculosis, Burke, Richard E., M.D.	455
Problem of Massive Upper GI Hemorrhage With Emphasis on Peptic Ulcer, Howard, Frank H., Jr., M.D.	234
Problem of Perinatal Morbidity and Mortality, The, Riley, Harris D., Jr., M.D.	128
Role of Radioisotopes in Clinical Diagnosis, The, Smith, Carl W., M.D., and Johnson, Philip C., M.D.	20
Rotary Power Lawn Mower Injury: Perforation of the Stomach, Henley, Thomas H., M.D.	86
Sarcoidosis with Joint Involvement, Morse, James O., M.D.	676

Scalene Node Biopsy, Honska, Walter L., Jr., M.D., Johnson, W. Tom, M.D., and Hammarsten, James F., M.D.	28
Selection of Pediatric Patients for Cardiac Diagnostic and Surgical Procedures, Caylor, Glen G., M.D.	446
Syndromes of Cerebral Dysfunction, The, Denhoff, Eric, M.D., Laufer, Maurice W., M.D., and Holden, Raymond H., M.A.	360
Ten-Year Experience with Caesarean Section in a 50-Bed Hospital, A, Chatham, Beverly C., M.D.	507
Torula Meningitis Treated with Amphotericin B, Welsh Jack D., M.D. (Edited by)	681
Transurethral Resection of Non-Infiltrating Carcinoma of the Bladder, Browne, Henry S., M.D.	358
The Treatment of Primary Dysmenorrhea with Chlormezanone (Trancopal®) Stough, Austin R., M.D.	575
The Use of Extracorporeal Hemodialysis: Artificial Kidney, Ginn, H. Earl, M.D.	527
The Use of a New Surfactant (Superinone) with a Purified Hemicellulose in the Treatment of Chronic Constipation, Stough, A. R., M.D.	134
The Visually Handicapped or Are They? King, Robert W., M.D.	302
"What Are We Doing for Our Stroke Patients?", Kent, Herbert, M.D.	522

#### SPECIAL ARTICLES

A Community Approach to the "Senior Citizens" Problem, DeVore, John W., M.D.	261
Fifty Years of Medical Genetics, Snyder, Laurence H., Sc.D.	250
Medical Aspects of Aging in England and Oklahoma, Kent, Herbert, M.D.	161
Oklahoma Art Center, The: An Invitation to the Enjoyment of Learning, Fulton, James Street, Ph.D.	92
Recent Advances and Objectives of the Nursing Home, Snelson, Paul A.	325
The Residency Problem in Oklahoma, Lowbeer, Leo, M.D.	158
The State Agency Evaluates Hospital Planning, Snelson, Paul A.	612
Veterans Our Biggest Privileged Class, Booth, John E.	36

-I-

Textbook of Surgery (3rd Edition) (BR)	640
Therapeutic Radiology (BR)	640
Thigpen, Corbet, M.D. (Pic)	695
The Treatment of Primary Dysmenorrhea with Chlormezanone (Trancopal®), Stough, Austin R., M.D. (S)	575
Tuberculosis and the Family Physician (E)	454
Taylor, Charles Benjamin, M.D. (D)	352
Taylor, R. Z., M.D. (Pic)	341

Ten-Year Experience with Caesarean Section in a 50-Bed Hospital, Chatham, Beverly, M.D. (S)	507
Thuringer, Joseph M., M.D. (D)	762
Topnotchers (Pic)	182
Torula Meningitis Treated with Amphotericin B, Welsh, Jack D., M.D., (Edited by) (S)	681
Transurethral Resection of Non-Infiltrating Carcinoma of the Bladder, Browne, Henry S., M.D. (S)	358
Treasury Department Wants Medicare Income Reports (GN)	819
Tulsa Physician Honored (GN)	202
Tulsa Physicians Honored (GN)	700
Turner Takes Top Post in Nuclear Society (GN)	401
Two Norman Physicians Honored (GN)	280

—U—

Use of Evtracorporeal Hemodialysis, The: Artificial Kidney, Ginn, E. Earl, M.D. (S)	527
Use of a New Surfactant (Superinone) with a Purified Hemicellulose in the Treatment of Chronic Constipation, Stough, A. R., M.D. (S)	134

—V—

Vandever, Harl F., M.D. (D)	283
Veterans Our Biggest Privileged Class, Booth, John E. (SA)	36
Vickers, Paul, M.D., and Denny, Ralph C., M.D., Malignancy of the Rectum and Sigmoid Colon (S)	307
Visually Handicapped or Are They?, The, King, Robert W., M.D. (S)	302
Voice of the Taxpayer (E)	573

—W—

Washington's Birthday Clinic Scheduled by Internists (GN)	114
Waskowitz, William Jay, M.D., Malignant Soft Tissue Tumors, A Ten Year Study from 1949 to 1959 at the University of Oklahoma Medical Center (S)	734

We Are Playing for Keeps (E)	437
Webb, James, M.D., and Williams, G. Rainey, M.D., Arterio-Venous Fistula: Rupture of Abdominal Aortic Aneurysm in the Vena Cava (S)	387
Welsh, Jack D., M.D. (Pic)	744
Welsh, Jack D., M.D., (Edited by) Torula Meningitis Treated with Amphotericin B (S)	681
Welsh, Jack D., M.D., Editor, Myxoedematous Goiter Associated with Thiosynate Intoxication (S)	228
Wesley Hospital Announces New Foundation (GN)	103
"What Are We Doing for Our Stroke Patients?", Kent, Herbert, M.D. (S)	522
White House Conference Set for Aging Problem (GN)	58
Whitney, M. L., M.D. (Pic)	405
Wiley, George Adrian, M.D. (D)	410
Williams, G. Rainey, M.D., and Webb, James, M.D., Arterio-Venous Fistula: Rupture of Abdominal Aortic Aneurysm in the Vena Cava (S)	387
Wiley, Alvin Ray, M.D. (D)	283
Wilson, Harwell, M.D. (Pic)	172
Woods, Alexander H., M.D. (Pic)	247
Worsham, Bertrand Ray, M.D. (Pic)	806

—Y—

Youth Conference on the Atom (GN)	266
Youthful Offenses in Modern Culture (E)	643

—Z—

Zuhdi, Nazih, M.D., Carey, John M., M.D., Greer, Allen E., M.D., Johnson, Peggy, R.N., and Faggella, Mary Lou, R.N., Experimental Background for Open Heart Surgery at the University Hospital in Oklahoma City, Oklahoma (S)	15
Zuhdi, Nazih, M.D., Greer, Allen E., M.D., Carey, John M., M.D., Aneurysms of the Aorta (S)	587
Zuhdi, Nazih, M.D., Greer, Allen, M.D., Donnell, John, M.D., Kimmell, Garman, McCollough, Bill, M.D., Montroy, John, M.D., Redmond, Robert, M.D., Carey, John, M.D., Geigerman, David, M.D., Krieger, Carl, M.D., A Clinical Study of Hypothermic Perfusion (S)	671



# AN AMES CLINIQUICK<sup>TM</sup>

CLINICAL BRIEFS FROM MODERN PRACTICE

## *What differentiates "renal diabetes" (renal glycosuria) from diabetes mellitus?*

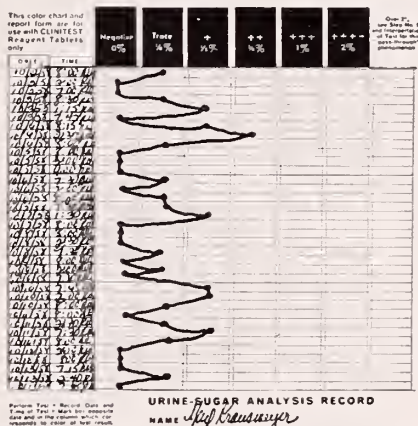
Blood sugar levels. In renal glycosuria they are normal; in untreated diabetes, fasting blood sugars are usually 130 mg.% or over and postprandial levels 170 mg.%, or more.

Source: Joslin, E. P.; Root, H. F.; White, P., and Marble, A.: The Treatment of Diabetes Mellitus, ed. 9, Philadelphia, Lea & Febiger, 1952, pp. 701-702.

## A "URINE-SUGAR PROFILE" FOR CLOSER CONTROL

The new CLINITEST Urine-Sugar Analysis Set contains an improved Analysis Record form that enables even closer control of the *moderate* and the *severe* diabetic. Daily urine-sugar readings may be connected to produce a graph—a day-to-day "profile" that reveals at a glance individual trends and degree of control.

\*GP 16:121 (August) 1957.



color-calibrated  
**CLINITEST<sup>®</sup>**  
BRAND



60453

## FOR EVEN BETTER CONTROL OF THE MODERATE AND THE SEVERE DIABETIC

the STANDARDIZED urine-sugar test for reliable quantitative estimations  
"...the most satisfactory method for home and office routine testing."\*

**AMES**  
COMPANY, INC  
Elkhart • Indiana  
Toronto • Canada



LIBRARIAN  
COLLEGE OF PHYSICIANS  
22 ST ABOVE CHESTNUT  
PHILADELPHIA PA

relief from the suffering and  
mental anguish of

# cancer



**THORAZINE\*** (chlorpromazine, S.K.F.)

one of the fundamental drugs in medicine



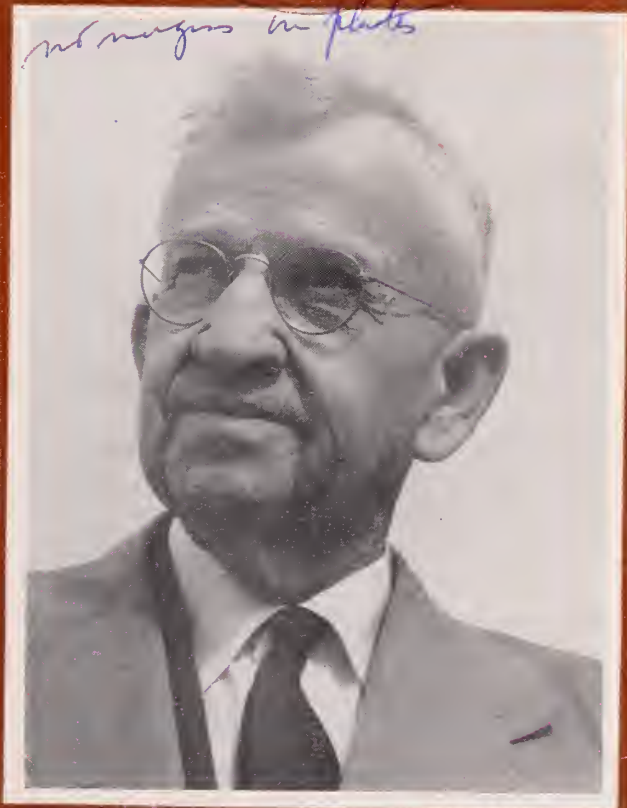
Smith Kline & French Laboratories

\*T.M. Reg. U.S. Pat. Off.

the

# J<sub>ournal</sub>

OF THE OKLAHOMA STATE MEDICAL ASSOCIATION



Chesley M. Martin, M.D.  
OKLAHOMAN NAMED AMA GP OF THE YEAR  
Page 810





## Counteract Depression with distinctively WELL-TOLERATED

# Deaner<sup>®</sup>

deanol acetamidobenzoate

- 'Deaner' may be prescribed with little or no concern over side effects even in the presence of liver disease, diabetes, cardiovascular disease, and a long list of other chronic conditions, except grand mal epilepsy (only contraindication).
- 'Deaner' *is not a monoamine oxidase inhibitor*; hence it is not necessary to monitor its administration with repeated, expensive laboratory tests.
- This notable freedom from side effects endows Deaner's long-term administration with easier patient supervision, better patient cooperation, and greater safety.
- Dosage is simple—initially, 50 mg. (2 tablets) daily in the morning. *Gradually, apathy and defeat are transformed into affability and renewed interest and vigor.*

Write for details and the applicability of  
'Deaner' in behavior problems of children



Northridge,  
California

JACK D. WELSH, M.D.  
PO BOX 13  
OKLA CITY OKLA



"This should  
lift your spirits  
and make you  
feel better."


The menopausal patient in need of psychic support... the post-partum patient suffering the "baby blues"... the convalescent patient worried about her future health... these and many other patients will often benefit from the antidepressant, mood-lifting effect of

**Dexamyl**<sup>®</sup> Tablets • Elixir  
Spansule<sup>®</sup> brand of sustained release capsules

brand of dextro amphetamine plus amobarbital

When the depressed patient is particularly listless and lethargic, she will often benefit from the gentle stimulating effect of

**Dexedrine**<sup>®</sup> Tablets • Elixir • Spansule<sup>®</sup> capsules  
brand of dextro amphetamine

 **Smith Kline & French Laboratories**











LIBRARY OF THE  
COLLEGE OF PHYSICIANS  
OF PHILADELPHIA

This Book is due on the last date stamped below. No further preliminary notice will be sent. Requests for renewals must be made on or before the date of expiration.

DUE	DUE
JUN 6 1960	
JUN 6 1960	
APR 13 1961	
APR 26 1961	
AUG 30 1961	
FEB 28 1963	
JUN 13 1963	
FEB - 7 1964	
OCT 30 1964	
DEC 23 1965	
MAR 9 1973	

A fine of twenty-five cents will be charged for each week or fraction of a week the book is retained without the Library's authorization.

